

BRASILIA, THE NEW CAPITAL OF BRAZIL:  
THE DIALECTICS OF THE ECONOMIC AND SOCIAL USE  
OF SPACE IN A NEW CITY

by

MILTON VITIS FEFERMAN

B. A. Architecture  
Federal University of Rio de Janeiro  
1961

SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF  
MASTER OF CITY PLANNING

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

January, 1976

Signature of Author.....  
Department of Urban Studies and Planning

Certified by.....  
Thesis Supervisor

Accepted by..  
Chairman, Departmental Committee on Graduate Students





Room 14-0551  
77 Massachusetts Avenue  
Cambridge, MA 02139  
Ph: 617.253.2800  
Email: [docs@mit.edu](mailto:docs@mit.edu)  
<http://libraries.mit.edu/docs>

## **DISCLAIMER OF QUALITY**

Due to the condition of the original material, there are unavoidable flaws in this reproduction. We have made every effort possible to provide you with the best copy available. If you are dissatisfied with this product and find it unusable, please contact Document Services as soon as possible.

Thank you.

The images contained in this document are of the best quality available.

BRASILIA, THE NEW CAPITAL OF BRAZIL: THE DIALECTICS OF THE  
ECONOMIC AND SOCIAL USE OF SPACE IN A NEW CITY

by

Milton Vitis Feferman

Submitted to the Department of Urban Studies and Planning on  
January , 1976 in partial fulfillment of the requirements  
for the Degree of Master of City Planning.

ABSTRACT

This thesis attempts to evaluate the planning experience of the new city of Brasilia, Brazil's new capital after the beginnings of the official settlement in 1960. In order to evaluate the urban imbalances due to the initial observation that less than one third of the total metropolitan population is living in the planned area, a sequence of paradigms has been developed.

Paradigm I develops a theoretical estimation on the ideological foundations of the phenomena denoted as "the rational city." This section includes a structural breakdown of the rationalist urban thought and strategies analysis through three different planning alternatives presented as entries in the national context for choosing the Brasilia Plan.

Paradigm II analyzes some institutional barriers interfering with the process of economic and social choice for urban space in the Brazilian "traditional" cities, and compares these processes to Brasilia in the double context "rationalism-populism" underlying the resulting contradictions and solutions adopted.

Paradigm III analyzes the effects on Brasilia's urban space by the institution of market mechanisms after the revolution of 1964, resulting in the great expansion of the "satellitization" process initiated in the "populist" period.

Paradigm IV explores some feasible changes for the actual metropolitan structure in order to achieve a more balanced growth under the effects of an increasingly progressive distribution of income.

Thesis Supervisor: Ralph A. Gakenheimer  
Title: Associate Professor of  
Urban Studies

## INTRODUCTORY SUMMARY

This thesis attempts to evaluate the planning experience of the new city of Brasilia, Brazil's new capital, fifteen years after the official settlement in 1960. Special emphasis is given to the evaluation of the urban imbalances due to the striking observation that less than one-third of the total metropolitan population is living within the physical boundaries of the "officially" planned area. In order to evaluate these urban problems, we developed a sequence of "paradigms," since we consider as highly positive, the analysis that encompasses the broad spectrum of the subject, with little reference to specific minor issues. The standpoints developed in each of the paradigms, it is hoped should be useful in furthering more specific and concentrated future investigative studies.

### Part A - Introduction

We argue the impossibility of a sectional analysis of urban problems as an explanatory theory for the urban inequalities shown by Brasilia's settlement. Therefore, for such intent we call upon an interdisciplinary approach within the framework of a personal ideological impression as a basic condition for a dynamic and personal standpoint in the urban problem's analysis.



## Paradigm I

Develops a theoretical estimation on the ideological foundations of the phenomena denoted as "the rational city." Historically, "the rational city" is seen as an ephemeral and frustrated attempt for the reconciliation between the rational scientific-aesthetic urban decision doctrine and the social demands for the compliance of the growing urban social conflicts. Brasilia's plans, historic and ideologic roots are identified as a modern version of the Renaissance ideas of urban order developed and systematized through the French Rationalism, of which LeCorbusier is seen as the most didactic example. The paradigm concludes in a structural analysis of the rationalist urban thought, particularly its urban planning physical strategies formally based on the aesthetical determinism and socially embedded in utopic assumptions of the social relations due to the adoptions of biased middle class cultural and professional values. Three distinct urban design alternatives for Brasilia are analyzed in order to show their intimate ideological connection in spite of their resembling formal differences. For these purposes the Rocha-Gonçalves plan is considered as a typical example of the additive and mechanic physical process used by rationalists to overcome the problems originated in the process for the urban growth. This process, while criticized, was not considered by the static assumption of Costa's plan. The Rino Levi Plan is presented as a positive

example of the implementation of high populational densities for the middle class residential sector. The social outcomes of high densities are compared against a survey made in a well known mixed neighborhood in Rio de Janeiro (Copacabana). Finally, the M. M. Roberto Plan is analyzed by its positive aspects such as the attempts for regional planning and the policies for informal settlements and by its negative features such as the rationalist assumption of growth by urban independent poles, without taking into consideration problems such as scale economies due to urbanization processes.

#### Part B - Praxis

Describes and analyzes the impact upon Brazilian realities of the rationalistic assumptions embodied in the Brasilia Master Plan (Plano Pilôto) elaborated by architect Lucio Costa. In order to find a valid urban indicator to test the new city social performance, two distinct paradigms are suggested; both of them used to highlight the problems induced by the pilot plan assumption under two different political, economic and social Brazilian scenarios. They follow.

#### Paradigm II

Analyzes some institutional barriers interfering with the process of economic and social choice for urban space in the Brazilian "traditional" cities context and compares

these processes to Brasilia in the double context "rationalism-populism," underlining the resulting contradictions and solutions adopted. The concluding assumptions consider the "unplanned" urban form such as the old cities as more open, particularly to the participation of the disposed strata. Consequently, the rational city is considered, particularly in the context of the populist political environment, as an exceptional and provisional epoch within which the inherent social regressivity of the rationalist urban standards proposed by the original Master Plan are to some extent neutralized by the urban demands of the masses through the existent participatory electoral process.

### Paradigm III

Analyzes the effects on the Brazilian urban scene institution of market mechanisms after the revolution of 1964. There is conclusive evidence showing a growing and irreversible process of social and economic elitism of the pilot plan timorously started in the populist period, now as a result of a double policy of "favelas erradication" and by the operation of the government financial institutions, particularly through housing financing. These processes further contributed to the intensification and consolidation of the urban satellitization processes already occurring throughout the metropolitan area. An explanatory hypothesis is discussed, showing the institution's successful attempt in segmenting internally the

working strata weakly divided by irrelevant occupational and monetary differences as a result of the paramount economic and social role performed by such sectors as civil construction and services, all characterized as unskilled employment typologies. This process, resulting in a homogenization of the working class demands, was confronted with antagonistic government urban policies classified as "negatives" based on the fear of "unexpected social behaviors" resulting from the incorporation of large masses in the official and distinct urbanization framework, and by the avoidance of the populist "calculated risk" policies.

#### Paradigm IV

Explores the forecasted changes that the actual urban structure will suffer during the next ten years as a result of a growing government services sector and the diminishing role of the civil construction sector in creating new jobs. At the same time the actual central employment trends are likely to continue, further enhancing the pattern of employment concentration in the pilot plan's area. Therefore, metropolitan disequilibrium between jobs and residential locations is likely to continue and grow. Actual policies do not strive for any continualizing effects; on the contrary they contribute to further satellitization, even for the middle class sectors. From these arguments, new possibilities for alternative urban policies are explored. These policies assume the basic economic and

political feasibility for a progressive income redistribution on a macro-level and the consequent effects on the metropolitan area. Some guidelines are described as examples for new metropolitan policies aimed to allow a locational equilibrium. It's suggested to use intrajurisdictional migrations as an indicator for the opening up of the central area through the adoption of new land use standards and zoning codes for the pilot plan area replacing in some cases the restrictive and elitist rationalistic standards. The use of taxation is proposed to encourage more balanced metropolitan growth. As a conclusion, it is argued that in absence of an open political process, the process of "urban opening" using the pilot plan's surroundings areas will depend upon the willingness of some political forces located with the government's decisional apparatus and striving for a broader participation for some new social groups in the social process of using the Brasilia urban space. From this standpoint the best urban policy would be that of trying to achieve a progressive liberalization of the urban space synchronized with the growing feasibility of a progressive income distribution adopted at the macro-economic level.

## ACKNOWLEDGMENTS

The ideas presented throughout this thesis were a preliminary result of my assignments as a member of the Brasilia University Planning Department's faculty. Later on these ideas grew ripe and took a defined form during my experience as a graduate student at the Department of Urban Studies and Planning at M.I.T.

In experiencing Brasilia's realities as I did, one can see the most contradictory human urban settlements: planned and spontaneous cities, urban agglomerations growing from nothing to conform a veritable urban laboratory where the most up-to-date solutions endorsed by the last decades of professionalism were tested side by side with the existence of self-help processes derived from popular ingenuity. Therefore, my main efforts in this academic work is devoted in finding the cultural and professional instruments that can be most accurate for the evaluation of the contradictions between the professional ideological intentions of the Brasilia planners and the resulting daily urban realities, characterized by the socially marginalized populations with which I have become familiar in the process of searching for solutions.

I am grateful to Professor Ralph Gakenheimer who deeply understands the urban problems derived from the economic and social underdevelopment. By the useful comments he gave as my academic advisor and as thesis

supervisor. Likewise, I would like to thank Professor Lisa Peattie to whom I owe my better understanding of the social problems originated by the process of urbanization. I am also grateful to Professor Alcira Kreimer, member of my thesis committee, for the comments on my work, and to Maureen Rush for typing this thesis. Finally, I want to acknowledge human support received from my wife Esmeralda and my sons Flavio, Carlos, and Julio who equally shared my living experiences in the United States.

Cambridge  
January 21, 1976

## TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT.....	2
INTRODUCTORY SUMMARY.....	3
ACKNOWLEDGMENTS.....	9
LIST OF TABLES.....	14
LIST OF FIGURES.....	16
LIST OF MAPS.....	17

### Part A: Theory

INTRODUCTION: EVALUATION OF URBAN QUALITIES.....	18
PARADIGM I: THE THEORY FOR A "RATIONAL CITY".....	27
1.1 The Ideology of the "Rational City".....	27
1.1.1 The Formation of a "Theory of Order"...	27
1.1.2 The Renaissance and the Rise of the "Rationalistic" Concept of Space.....	30
1.1.3 The New Professionalism of Physical Planning.....	32
1.1.4 Urban Form and the "Impersonal" Design Methods.....	38
1.1.5 LeCorbusier: The Codification of the "Rationalistic" Urban Planning.....	43
1.1.6 The "Rational City": A Structural Analysis.....	47
1.1.6.1 Spatial Organization.....	47
1.1.6.2 User's Standards.....	50
1.1.6.3 Brasilia's Spatial Planning Lucio Costa's Plan.....	52
1.1.6.4 The Zoning System.....	54
1.2 Analysis of Brasilia's Alternative Physical Plans: A Critique on the Brazilian "Rational- ist" Design Methods.....	62
1.2.1 The Plan of Rocha-Goncalves.....	65
1.2.2 The Plan of Rino Levi.....	72
1.2.3 The Plan of M. M. Roberto.....	81



## Part B: Praxis

INTRODUCTION: BRAZIL'S ECONOMIC AND POLITICAL BACK- GROUND.....	91
PARADIGM II: BRASILIA'S URBAN FORM AND POPULIST DECISION-MAKING.....	93
2.1 The Populist Governments.....	93
2.2 The Kubitschek Government: National Policies.	98
2.3 The New City and the "Old Traditional" Cities: A Comparison.....	111
2.3.1 Locational Constraints in "Old Cities".	112
2.3.1.1 Metropolitan and Urban Loca- tional "Control".....	125
2.3.1.2 Land Tenure: Legal Rights and Institutional "Control".....	127
2.3.2 Locational Constraints in Brasilia.....	133
2.3.2.1 The Satellitization Process and the "populist" Urban Decision Making.....	138
2.3.2.2 "Populist" Government Incen- tives and Relocation Policies..	147
2.3.2.3 The Planner's Position.....	151
PARADIGM III: URBAN FORM UNDER GOVERNMENT INTER- VENTION TO ENFORCE "FREE MARKET" TRANSACTIONS.....	154
3.1 New National Urban Policies.....	154
3.2 Brasilia and the Institution of Official Hous- ing Financial Markets.....	157
3.3 The Radicalization of Urban Segregation and the Role of Housing Market Mechanisms.....	167
3.3.1 The Institution of Market Mechanisms...	167
3.3.2 The Provision of Financial Govern- ment Loans.....	168
3.3.3 The Design and Implementation of a Strategy for the "Erradication of Favelas".....	168
3.4 The Satellitization Process.....	176
3.5 Spatial Segregation and Labor Market.....	179

Table of Contents (cont.)

Page

PARADIGM IV: GUIDELINES FOR NEW METROPOLITAN POLICIES.....	188
4.1 Employment Patterns and Urban Policies.....	188
4.2 The Job Distribution in the Metro- politan Area.....	196
4.3 The Future Distribution of Jobs.....	198
4.4 New Alternative Urban Policies.....	204
4.5 The Economic Feasibility for a "New Metropolitanism".....	213
4.6 The Political and Institutional Feasibility for Metropolitan Change.....	227
FOOTNOTES.....	243
BIBLIOGRAPHY,.....	
I - Brazilian Periodic Publications.....	261
II - Brazilian Publications.....	264
III - International Publications.....	266
IV - General Bibliography.....	271

# LIST OF TABLES

Table I	Brazilia: Distribution of Total Population in the Metropolitan Area.
Table II	Brazil: Gross Domestic Product (1949-1961).
Table III	Cost of Living Index for Rio de Janeiro and Per Capita Real Product (1952-1961).
Table IV	Brazil: Distribution of National Income by Regions.
Table V	A - Receipts and Expenditures of the Federal Government as a Percentage of Gross Domestic Product (1955-1962).
Table V	B - Brazil Real Value of Receipts, Expenditures and Deficits of the Federal Government in 1961 Cruzeiros (1958-1961).
Table VII	Rio de Janeiro: Squatter Families by Residential Zone and "Spatial" Job Opportunities.
Table VIII	Sao Paulo: Evolution of the Domestic Expenditures Structure (working class).
Table IX	Sao Paulo: Transportation Expenditures Structure (working class).
Table X	Sao Paulo: Price Variations - 1971 (for the working class consumer).
Table XI	Comparison between Working Class Family Type Sao Paulo: 1958-1969.
Table XII	Sao Paulo: Evolution of the Real Wage, 1958-64.
Table XIII	Brasilia: Means of Transportation to Work of Household Heads in the Social Security Invasion - 1967.
Table XIV	Brasilia: Relationship between Income, Locational Distribution and New Official Housing Supply in the Metropolitan Area - 1966-1972.
Table XV	Brasilia: Families Removed from "Favelas" toward New Official Settlement Sites, between 1971 and 1972.

List of Tables (cont.)

Table XVI	Brasilia: Income and Location.
Table XVII	Brasilia: Employees by Activity and Metropolitan Location - 1970.
Table XVIII	Brasilia: Present Occupation of Heads of Household in the Social Security Invasion - 1965-67.
Table XIX	Brasilia: Heads of Household Place of Work - Spatial Patterns.
Table XX	Brasilia: Local Activities Absorbtion.
Table XXI	Brasilia: Civil Construction Sector: Manpower Demand Forecast, 1974-1983.
Table XXII	Brasilia: Occupational Structure Observed and Projected, 1972-1983.
Table XXIII	Brasilia: Population Densities and Urbanization Costs.
Table XXIV	Brazil: Projected Growth Rates in Three Redistribution Experiments - 1971.

## LIST OF FIGURES

- Figure 1      Brasília: Pilot Plans Proposals (in same scale).
- Figure 2      Pilot Plan: Upper Middle Class Neighborhood Price Structure.
- Figure 3      Pilot Plan: Middle Class Neighborhood Price Structure.
- Figure 4      Pilot Plan: "Popular Neighborhood" Price Structure.
- Figure 5      Pilot Plan: "Low Middle Class Neighborhood" Price Structure.
- Figure 6      Metropolitan Hourly Population Profiles in Each Satellite City - A.
- Figure 7      Metropolitan Hourly Population Profiles in Each Satellite City - B.
- Figure 8      Intensity and Direction - Daily Commuting in Brasilia's Metropolitan Area.

## LIST OF MAPS

- Map I            Rio de Janeiro: Population Distribution and  
                 C.B.D. Accessibility.
- Map II           Brasilia: Population Distribution and C.B.D.  
                 Accessibility.

## INTRODUCTION

### THE EVALUATION OF URBAN QUALITIES

Fifteen years after the beginnings of the official settlement in 1960, the city of Brasilia, Brazil's new capital, has less than one-third of the total metropolitan population living within the physical boundaries of the "officially" planned area. The remaining two-thirds live in cities without any planning process: the satellite cities. Table I shows the population in each one of these cities in comparison with Brasilia, between 1960 and 1970.

As we can see, the "Pilot Plan" (the official city), while doubling its own population in ten years, has a diminishing share on the total population from 48.44 percent in 1960 to 28.69 percent in 1970; at the same time the subnucleus or satellite cities not included in the original plan and following an unplanned growing process increased several times their populations, generally comprising low-income strata not sheltered in the Pilot Plan. Some nuclei had entered a process of rapid growth, as for example, Taguatinga, Sobradinho, and Planaltina, until they reached a constant percentage due to the appearance of new peripheral settlements which began to absorb new populations with new distributional income scale, as Guara, Gama, and the Invasions which can be defined as

TABLE I  
BRASILIA: DISTRIBUTION OF TOTAL POPULATION IN THE METROPOLITAN AREA

	<u>Localities</u>	<u>1960</u>		<u>1970</u>	
		<u>Population</u>	<u>%</u>	<u>Population</u>	<u>%</u>
Official Settle- ment	1. Pilot Plan	68.665	48.44	156.688	28.69
Satellite Cities	2. Taguatinga	26.111	18.42	107.347	19.66
	3. Gama	-----	-----	72.405	13.26
	4. Sobradinho	8.478	5.98	39.458	7.23
	5. Guará	-----	-----	24.864	4.55
	6. Núcleo Bandeirante	21.033	14.84	11.268	2.06
	7. Planaltina	2.915	2.06	18.508	3.39
	8. Braslandia	-----	-----	9.592	1.76
	9. Invasões Ceilandia	-----	-----	84.204	15.42
	Urban Zones	127.204	89.74	524.315	96.03
	Rural Zones	14.538	10.26	21.700	3.97
	Federal District	141.742	100.00	546.015	100.00

Source: I.B.G.E.--Brazil



areas of irregular and/or illegal settlement. Nowadays, the population is still growing at very high rates, and all trends are likely to show that the populational share of the Pilot Plan would be less if compared to the satellite group of cities whose tendency is to continue to enter a process of growth and densification.

From these basic data, we start toward the main purpose of this thesis which would be trying to answer the following basic questions:

1. Which are the main conditions that make Brasilia (with all its planning process supposed to be the most sophisticated of Brazil) the city that, due to its natural symbolic values had concentrated all the best technical capabilities of the country, barely houses a minority of the intended population, mainly medium and high-income strata?
2. Is this unequal settlement pattern merely a result of a "momentary neglect" on the program of construction of the city, or a structural and cultural bias linked with the professional planning ideology and reflecting the unwillingness to let the poor indulge their particular societal goals?

We are aware of the difficulties in trying to build a process intended to evaluate the complex and contradictory qualities and problems of a given urban space. Two different types of difficulties arise as a conceptual obstacle to our task:

- The total impossibility, due to the nature of the universalitarian pattern of organizing an interdisciplinary work in order to evaluate a broader range of interconnected issues and problems far deeper than the unilateral, academic, and one-directional, either economic, or

social, or political, or physical urban understanding.

- The difficulty in establishing "universal and valid objective criteria in order to qualify different urban properties as economic efficiency" or "urban quality of life."

As for the first topic, we have to discuss several theoretic postures. Even if we found some economic or social indicators that can be considered as basic, these qualifications always represent a value judgment which strongly depends on the nature of our individual ideological gesture. The relative achievements brought to the urban scene by the methodological development of the social sciences during the last decade, particularly by adopting quantitative methods had only increased the number of variables rather than contribute to the relative clearness and simplification of the urban problem, while the number of disciplines studying the relation of human actor/environment had experienced a rapid growth. At the same time, the process of defining "values" had entered a critical stage because sectorial knowledge had become synonymous with professional effectiveness and/or success. We argue that it is harder to analyze urban issues within the context of the economic and social system than to identify partial relationships within a sub-part of that system. However, we think that a mediocre effort that reaches for too much is better than taking on ineffective problems. Moreover, if an approach of a certain technique

can be successful in one field of science, it cannot necessarily be transferred to another. This holds particularly true for urban systems that combine a high degree of complexity with a high degree of interaction, resisting categorizing by sectorial studies. In this process, the more detail is added, the more tempting it becomes to accept it as the true explanation if we consider the urban structure as emerging only from individual independent transactions. In recognizing these realities, we will develop through this thesis, an effort for integrative concepts rather than categorical approaches. This posture also implies an integrative effort to understand and explain urban form as "embedded" in a broad and extremely complex social-economic and political system. As a result of these processes, the main concern of the architects, almost exclusively devoted to the aesthetic or physical qualities of the spatial envelope of the city, had changed dramatically toward a new correlation of interdisciplinary disciplines in order to understand space as a dependent variable. We therefore are now interested in building bridges linking the most recent achievements in different cognitive fields, bringing new insights to the spatial problems and their relationships with man.

Only recently, urban social facts are beginning to be explained by reference to "hidden" social, economic, or cultural facts and there is a tendency to recognize that

urban institutions are shaped by economic and social factors requiring a critical analysis to uncover them. In consequence, the task of a modern urban theory is to show that the structure of the urban institutions are only the means in the social process, of which the end is material accumulation. Institutions are only the outcome of a centuries-long transition. And the analysis has to be concentrated on the changing power relations between different social classes trying to explain how the structure of the institutions are shaped in order to allow the power of one social strata over another. This new approach explains why urban sociology and political economy, with a renewed focus on the class and the distributional system, are now joining efforts in order to explain the most acute urban problems, as unemployment, subemployment, marginality, the persistence of poverty or the expansionary drive of developed countries vis-a-vis the underdeveloped economies as different aspects of the material accumulation process. As in the case of social methodology, economic science too had abandoned the self-functional structure. Orthodox economic theory, by defending the optimality of the perfect competitive market, has never provided useful insight into the real working of the economic sphere. As a theory of a general equilibrium to cover production and consumption, classical economic theory cannot explain a social system or social class conflicts. Urban actors are considered

only as market agents, never as parts of a social and real structure. As an independent science, there is a tendency to demonstrate an intrinsic derive for natural equilibrium rather than by conflict. As a result, the unilaterality of a pure economic approach has little to say about such important and connected urban questions as the social consequences of a given distribution of income and wealth. It cannot describe the evolution of the social process and the development of the different social contradictions. The new integrated vision of urban problems must be particularly interested in structure, in the overall patterns of dependency and interdependency between the established institutions, in how the system works together or fails to work. The new vision has to be concerned with how a given urban economy keeps going and what is supposed to happen in the social and spatial sphere, and what can be the "paradigm" heading toward new social relations. Therefore, we don't believe that an "accidental" view of the urban issues could provide a coherent vision of the urban history. The classical approach has always assumed that an urban theory will emerge after a relative "broad collection" of facts by direct induction. Those who tried to create theory out of facts never understood that it was only theory that could constitute them as facts in the first place. Therefore, we believe that urban events are only meaningful in terms of a structure which will establish

them as such. We refuse to accept as scientific the notion that facts and interpretation are two different and separable moments. To describe an urban experience so complex as Brasilia, it is necessary first to make a selection of facts and an interpretation of each one which in turn are determined by our personal values. The unique form to verify the degree of accuracy of these values is to compare the theory assumed with the imminent movement of reality through a process of historical discussion. As for history, as Levi-Strauss has pointed out, "history is a heterogeneous collection of chronological facts." The problem of re-integrating these seemingly independent temporal structures into an integrated and meaningful practice suggests evidence to reinforce our interdisciplinary thesis, in which we state that the urban problem will not be understandable through a single-handed effort of isolated individuals (as myself, writing an individual thesis on individual problems and using my limited and restricted knowledge even though I can understand the real nature of the problem) but through a combined cultural historic "assault."

Individualistic theories had provided a constant escape route from the necessity to reformulate historical concepts. Urban theorists must form their own institutions, but they should at the same time, attempt to design the theoretical foundations of a general theory dealing with

the interpretation of the morphology of whole urban cultures as a collective and participant intellectual task. Therefore, instead of pursuing the "conservative science" methods by looking at urban problems through multitudes of particular minor cases, I will adopt as a "method" for the discussion on this thesis, the concept of "paradigm." A "paradigm" is neither a model nor a complete theory. It encompasses the whole subject, yet says little that is "specific." However, its advantages stem from this very basic posture: It is a standpoint from which to develop specific theories. It can provide the principle which generates models, yet it cannot be grasped apart from the models and theories it creates, and in which it becomes embodied. It is just a new standpoint I hope will be helpful in emerging some of the main urban problems we will now address ourselves.

## PARADIGM I.

### THE THEORY FOR A "RATIONAL" CITY

#### 1.1 The Ideology of the "Rational" City

To understand Brasilia's "physical design," we need to make a cultural effort, trying to rebuild the historical and cultural roots of the modern rationalistic conceptions of urban design. The first problem to deal with is thus an historical and cultural one. We have to remit ourselves to the analysis and evolution of the urbanistic European thought during the beginnings of our century, particularly the trajectory of the French academic urbanism and rationalism, and their ideological connections with the Renaissance.

##### 1.1.1 The Formulation of a "Theory of Order":

As soon as the cultural reaction to the socio-economic phenomena resulting from the modern industrialization was over, a "rational" doctrinary cultural reaction appears in Europe, mainly in those countries which have to cope with the tremendous problems generated by the intensive rural-urban migrations. With the spread of capitalistic enterprises, a new basis for city life developed in the urban centers of the Western world, changing quantitatively and qualitatively all pre-existing social and economic relations within the towns and between town and country. The larger cities, to which much of the migrations were directed, lacked the physical and



administrative facilities for dealing with so many structural problems. In slums and working-class quarters, crime and drunkenness rapidly became the normal condition of life. There appears to be no social dimension; rather, social life becomes a force operating far beyond the law and common sense. Cities are delivered to autonomous government, and there is a continuous breakdown of older traditional social and economic structures based on family ties, local associations, culture, with the subordination to a clear and consented order. Precapitalistic cities were limited by the countryside, not only physically but culturally insofar as the city reflected the social relations on the land. But once the capitalistic manufacture system spread, all that traditional structure collapsed. The new system developed in leaps and engulfed space and time, creating a dynamic hitherto unknown. At that point, society faces a double contradiction: at one side the principles of economic liberalism aiming at the establishing of a self-regulating social and economic system relying on the market mechanisms and the laissez-faire having free trade as its method; at the other side, the principle of social protection aiming at the conservation of man and the physical ambience as preconditions for the functioning of the productive organization. The intensity and insensibility of the market laws had no sensorial institutional organ to "detect" the dangers such as, the destruction of family life, the spatial

devastation of neighborhoods, the denudation of forests, the pollution of rivers, and all the degradation of human standards. An institutional governmental effort was then launched to ensure some degree of health and salubrity in the housing of the poor, providing them with allotments. Some poor tenants were rescued from their slum dwellings by the first legislative acts designed to protect their inhabitants from the rents derived from free market prices under normal operations. The main scope of these first institutional urban interventions was a social defense of the dispossessed classes facing the operation of extreme speculative market mechanisms. These legislative acts, mainly in respect to land, "saved" the tenants (the peasants) from the most violent effects of urbanization. However, a long way would be pursued until these institutional purposes could gain professional clarity, as in the fifteenth century when professional doctrine for an urban theory and the principles of spatial planning were directed by ideas coupling the institutional necessity of intervention with a core of physical-aesthetical central ideas. Historically, it was the same rationalistic necessity to organize the whole society within a coherent and gradually increasing spatial self-consciousness which generated the development of the modern "rational" urban design theory. Therefore, some of these historical assumptions must be briefly described.

### 1.1.2 The Renaissance and the Rise of the "Rationalistic" Conception of Space

Our "rationalistic" conception of space and urban design is essentially a creation of the Renaissance. However, the interest in the individual object, the search for a scientific law is a natural continuation of the historic process developed through the Middle Ages in which individual concepts of relative independent unities began to arise. In the Renaissance, these individual characteristics are submitted to a scientific method. In this sense what is really new is the totalitarian character of the method and the conscious deliberation and consistency criterion with which reality and space were designed; while in the Gothic period, space and their independent tract were considered to be "symbols," The Renaissance asks for a methodological connection of the physical objects considered in their immediate reality. Hauser<sup>(1)</sup> considers that:

"The more society and economic life emancipate themselves from the fetters of ecclesiastical dogma, the more freely does art turn to the consideration of immediate reality..."

The new basic concept in the representation of reality is the principle of uniformity and the power of the total effect and the tendency towards space uniformity, despite all details. Whether reality is made up of different and individual parts or is not analyzable into such parts, it is always the principle of concentration and not coordination and the closed geometric form which dominates. The

method is not to separate any single spatial element from the whole composition but to force it into the basic framework. For this new conception space forms an indivisible unity and the urban actors have to grasp the whole urban space through the principles of central perspective with a single glance. Space, therefore, is interpreted by a simultaneous rather than a successive knowledge. Historically this conception corresponds with the revival of the economic life in Italy and the system of free competition in opposition to the guild system of the Middle Ages. Socially, due to the emancipation of the urban middle class over feudalism, as a result of the formation of a financial aristocracy, the Renaissance deepens the influence of the medieval economic and social development with its striving toward a more complex division of labor. Now society is dominated by abstract rational laws regulating the capitalistic economic system. These laws express the capitalistic needs for planning, calculability, and expediency leading to quantitative gains. They are creations of the same intellectual effort which makes its way in the organization of the productive labor, in the trading methods of the credit system, the bookkeeping control, or in the method for the rational government or warfare. Therefore, the concept of space becomes also part of the total process of rationalization. Space is now felt as a logical conformity of the individual parts of a whole, the geometric or

arithmetically definable harmony of the different relationships and the calculable equilibrium of a composition, and therefore the exclusion of discords in the relation of complex activities in space. Central perspective is adopted as a means to consider space from a mathematical standpoint in order to achieve systematic organization of the individual forms. As a consequence, the production of forms emancipated from the spirit of pure craftsmanship and a new professional educational system was created.

### 1.1.3 The New Professional of Planning

From the educational standpoint, the new professional demand had to begin with the abolition of the teaching monopoly of the guilds.

"As long as the right to practice as a professional was conditional on apprenticeship under a guild master, neither the influence of the guilds nor the supremacy of the craft tradition could be broken. The education of the rising generation had to be transferred from the workshop to the school and practical instruction had to yield partly to theoretical in order to remove obstacles which the old system put in the way of a young talent." (12)

The process begins by the authority of the masters being replaced by the ideal of nature, and ends with the finished body of doctrine represented by academic instruction, in which the place of the old discredited models is taken by new ideals, just as strictly limited but from now on scientifically based. The old workshop community and craft tradition are abolished and replaced by a purely intellectual teacher-pupil relationship. From now on it's possible

to build an urban conceptual method "in abstract" as an intellectual and scientific conception. The professional has to comprehend the world empirically and derive rational laws from this experience, endeavoring to control reality. Alberti is the first to express the idea that mathematics, as both the theory of proportions and the theory of perspective, are organizational disciplines. Therefore, as each individual part of reality can be controlled and organized through a mental scientific and abstract discipline, the idea of autonomy of the various forms of intellectual expression appears and an art such as urban design, which bears its meaning and purpose within itself and its sets of rational rules, becomes conceivable. For the spatial conception, the drawing, as a coherent set of scientific interlinked images, became the direct form of artistic creation of spaces, for it gave the most complete expression possible to the fragmentary, "uncompleted" and "uncompleteable" social space. The design method as an achievement, per se, began to be regarded as a realizable project instead of as a formula for an artistic independence and complete creation. The raise in the mere capacity for achievement above the real achievement itself is the first step from our modern inability of the individual genius to communicate himself with society and to the appeal to posterity against our present verdict. However, the basic idea derived from this historic process has a powerful cultural

impact on today's spatial creativity: the idea that spatial forms are independent of "external" laws, and that they belong to a certain particular individual and exclusive creative process occurring in the creator's mind. Urban form and social space from this point on can remain in an intellectual sphere in which it is possible to organize an individual image of the social space from one individual or class standpoint, since the world is now divided in a transcendent professional ideology as a separate entity from practical affairs. Nowadays, this tendency is typically represented by the transference of the professional interest from the social results of the planning concepts to the analysis of the formal elements and aesthetic contents of the spatial plan. Also, the idea of an ideal urban model, a master plan idea, the conception of the internal coherence of the model as distinct from the coherence of reality, has the same cultural roots in the idea of an autonomous professional and exclusive production of a distinct knowledge. More important, these conceptions of cultural autonomy are directly affected by the degree of the division of labour in society, which increases the contradiction between intellectual and physical works within different social strata. As an "independent" structure, the cultural forms are under direct influence of class concepts or interests in a given historical epoch. Uniformity and aesthetical consistency were the highest criteria of truth

during the Renaissance, as well as for the Rationalists of our century. However, if we are interested in change and social mobility, we have to see reality not in the form of a consistently organized and unified space but rather in scattered groups from different spatial values, and that the whole urban space is composed when we add together the total panorama of these different and unequal views of the whole. The discontinuous representation of space, at any rate, makes a much more "scientific" representation of our modern space than the central and hierarchical rationalistic conception.

As the principle of division of labour and specialization are triumphant and gradually attain supreme power, academic education and theoretical abstract training became more and more the prerequisites for professional efficiency. Historically, the representatives of the lower class began to form an ever decreasing proportion of the total number of working "professionals." As the upper bourgeoisie had formally allied itself with other dominant oligarchies the professionals were basically recruited in the ranks of the middle class. This process explains the latent conflict between the intellectual as a "professional" and the dominant classes. A partial "humanistic" solution is the escape into the "ivory tower." The whole modern rationalist movement followed this pattern, ideologically serving the interests of the conservatism without being able to "adapt"



itself to the order it supported. They became passive and uprooted, serving the interests of the upper strata and abstaining from all political activity in order to "tie himself down," but by this passivity the professionals only confirm the present conflict. The "rationalists," as "humanists," began to lose touch with reality, becoming romantic or social utopians as a result of their "intellectual" independence and social indifference. Meanwhile, a society based on the idea of authority and submission will naturally utilize "rational" planning to favor the expression and manifestation of discipline and order rather than surrender to reality. Such a society will want to invest in the work of physical planning to prove that there are universally valid, inviolable standards and principles that the world must be ruled by -- a technical and neutral purpose -- and that the individual man must submit to these purposes. Rationalistic ideas of independent and individualist urban form served these purposes of social domain in which the ruling class will look above all as a symbol of the calm and stability which it aspires for all society. For example, if Brazilian architects develop a rational and "artistic" urban composition for a new symbolic capital and force urban reality into the pattern of an erudite composition, that does not imply merely a solution of a formal or intellectual problem, but a political and economic outlook of life as a desire to perpetuate the state

of affairs which corresponds and reinforces this outlook. A "rationally" planned city is a normative instrument which places an individually conceived norma and rules above personal freedom and considers this norm itself as a way of perfection rather than the degree of freedom between different societal values. The individual submitted to this inflexible urban scheme felt himself small and powerless and surrendered himself to the powerful. However, how can this comparative uniformity in the theory of urban form be reconciled with the social changes? The polarity between plan and reality was already felt and mitigated in the Renaissance and represents the real modern contradictory inheritance from the "classical" cultural propositions. Since then, we think of a work of urban design as a concentrated and organized picture of reality seen from a single and uniform point of view: a formal structure that seems to "overcome" the tensions between the world and the cultural object opposed to the world. However, as this historical formalism was itself a period of short duration covering no more than twenty years, this shortness is also typical in the "classical" modern periods (Bauhaus, Cubism, Rationalism, etc) and correspond in nothing but short periods. These historical phases proved that strict formal istic and normative attempts were and are unable to hold their own propositions of formal order against the contradictions and conflicts not only of the historically

significant epochs but for modern reality where these contradictions have been economically and socially accentuated. This contradiction between reality and a physical form, submitted and reducible to a series of formulae, was therefore more an aesthetical ideal and a fiction than a reality; and as any "classical" age - even the Renaissance - remained as we know today, a very dynamic epoch which was unable to maintain more than a precarious and narrow equilibrium between such diversity and "ideal" urban form. These patterns of academic and classical urban design are therefore "embedded" in this basic contradiction and professionally result in attempts to "normalize" the typical individualism of the professional planning activity with the necessity which arose from the economic and social conditions to normalize through impersonal and scientific methods, social conflicts of antagonistic forces. We have analyzed the Renaissance where we have localized the basic historical sources of our historical conflict. We will now turn again our analytical focus to the foundations of the contemporary rationalist urban ideologies.

#### 1.1.4 Urban Form and the "Impersonal" Design Methods

The modern rationalistic attitude toward the building of an "effective" theory for urban planning essentially emerged from these historical predisposing causes, renewed through the Twentieth Century cultural and academic environment. The main ideas were originated in a cultural

background in which new societal values as the sense of an architect's responsibility to the society in which he finds himself, a philosophical structural approach to the theory of the design and tradition of academic instruction were the main issues. On the first account, one must understand the basic ideas underlying the design theory from the "Beaux Arts" instruction. These ideas regarding the methods to be adopted by the architectural and urban design were derived from the direct comparison with the painterly methods. The professional ideology of the Western physical planning was basically founded in the principles stated at that time, with its emphasis in aesthetical and technical methods of expression as composition, form, equilibrium, etc., as against individualistic and free complex interpretation and ordinance of reality. The main focus is placed, as in the painting theories, in the basic contradiction between form and structure as two basic moments in the urban artistic creation; and the key issue is the avoidance of the individual stylistic problem and the adoption of a scientific, impersonal method of design. The meaning of science here is adopted as a result of the general formula: science is equal to erudition plus method. Science, therefore, is not understood by the rationalists as a mental discipline based on experimental research and free to face reality, but as an application of historical aesthetical erudition.

The "impersonal" method can be considered as the first attempt to introduce in the cognitive process an impersonal and alienated educational method and the repression of the individual personality and individual research. In that context, the form built-form is now generally regarded as having laws of its own (harmony, proportion, etc.) and the methodological cultural search is focused in the theory to give currency to the word form as an independent historical variable in the design process. Isolated form can be regarded as having an abstract and impersonal rule as LeCorbusier points out: ... "the proportional setting out of a door in a panel with  $m'$  and  $n'$  ... In reality, construction results in giving the door a width equal to one-third of  $m'n'$  and a height equal to twice the width, but the graphical method that leads to this result is interesting in itself and contains the whole method." (3)

The alternative, an individual personal taste, is considered as an "ambiguous sentiment of harmony named taste." (4) As capitalistic industrial relations technologies developed, it was clear that time and energy required for professional competence and skills might now be devoted to the direct importance of an educational productive method rather than the development of individual creative capacities. Thus, even in the artistic and cultural sector, the professionals trained through the elitist educational system must accept the molding of their personality through

cognitive cultural models normalized by rational rules rather than noncognitive individual behavior. As a result, the planning design processes were mounted in a threefold cultural and philosophical assumption: history as a cultural repository of themes, science as a normative too , and the educational system as an impersonal "scientific and neutral" institution intended to disseminate the methodology. Regarding the urban design methods, the historic connection was made by recovering the "impersonal and scientific" methods of the symmetrical composition and the use of multi-axially symmetrical plan patterns. The Beaux Arts program, for example, has for its object of study the composition of buildings in their elements and their totality, from the double viewpoint of adapting them to defined programs and to material necessities. Therefore to compose a city is to make use of the individual elements (buildings) and to put together as a unit the parts in a whole superior unity controlled and assembled through the disciplines of regulatory axes. Urban composition can be therefore defined as cultural action of assembled small historically informed functioning volumes (buildings) conceived in terms of a separate entities for each separated and defined social function in a final composition following axes, in such a way that this separation and definition was made visible through the axis coordination. This theory of the elementary composition has survived throughout the Nineteenth

Century and entered our century underlying all the professional theoretic assumptions regarding town planning. We will find LeCorbusier using the method as a basic idea in the formulation of his basic planning concepts, totally reproduced in the basic idea of Brasilia's monumental two axial conception. The cultural appeal of these design methods was due to a series of historical and cultural opportunities: First, the proliferation of the eclectics and decorative ideas widely regarded by the newly rising industrial methods as harder to adapt to the modern industrialization processes with their specific demands for standardization and mass production. Complexity had reached its peak and the return to simple elementary forms was the only way to open new industrial opportunities. Secondly, ideologically, because the control on the social forms will be performed by a kind of impersonal discipline and by the construction of a deterministic view of the urban history that depreciates any personal effort and tends to leave the professionals waiting for a new structural principle to be derived from a new single and overriding art of design, embracing all others as an independent FORM. In this context, the form considered now as a common urban form can be regarded as having its own specific laws, as the systematic use of proportions, equilibrium, symmetry, etc. The rationalistic system develops, therefore, a sort of logic and theological view of the urban nature linking

the evolution of the system, and thus the development of the Western Modern Movement to a sort of a rigorous moral and intellectual middle class discipline acquired through academic training.

#### 1.1.5 LeCorbusier: The Codification of the Rationalistic Urban Planning

LeCorbusier created, starting from the cultural framework of the Beaux Art ideas, an entirely homogeneous and didactic set of urban physical propositions as a kind of cultural market product whose homogeneity and structural clearness had answered the basic professional aims of the middle class planning intellectuality for most developed and underdeveloped countries. These planning principles were described in his basic document, Urbanisme, where he states:

"Our modern culture, acquired by the West, has its roots set deep in the invasions which extinguished antique culture. After the check of AD 1000, it began to build itself again slowly through another ten centuries. With a primitive but admirably ingenious equipment invented in the Middle Ages, it inscribed certain points of great splendor in the Eighteenth Century...Where the Eighteenth Century, defined the fundamental principles of reason, the Nineteenth Century, by a magnificent effort, gave itself up to analysis and experiment and created an equipment which was entirely new, formidable, revolutionary, and destined to revolutionize society ...We are the heirs of that effort; we are aware of our modern feeling, and we know that an era of creation is about to commence...This modern sentiment is a spirit of geometry, a spirit of construction and synthesis. Exactitude and order are its essential condition...This is the passion of the age. With what astonishment do we regard the disordered and spasmodic impulses of Romanticism! A period when the soul was thrown back on itself in such an effort



of analysis that it was as though a volcano were in eruption. No longer do we get these eruptions of overcharged personality. The amplitude of our means impels us toward the general, and to an appreciation of the simple fact. In place of individualism and its fevered products, we prefer the common rule, the everyday, the rule to the exception. The everyday, the rule, the common rule, seems to us now the strategic base for the journey towards progress and the beautiful. A general beauty draws us in and the heroically beautiful seems merely theatrical. We prefer Bach to Wagner...Throughout the world we see the array of mighty powers, both in the industrial and the social spheres; we see, emerging from chaos, ordered and logical aspirations, and we feel that they are in harmony with the means of realization at our disposal. The industrial achievements of our own age, which impress us so profoundly today, are created by placid and modest man whose thoughts are limited and direct: engineers who do their additions on squared paper...yet, these men can bring those of us who have something of the poet in us to the very extreme of enthusiasm and emotion..." (5)

In this passage we can simultaneously remark the main rationalistic ideas as the restating of the familiar prejudice against diversity and complexity in urban environments through a pseudo-scientific inclination for using schematic geometric processes as a basic tool to perceive and interpret the external world; the concept of the ancient ages as of "chaos and disorder," and an attack against variety in planning as opposed to uniformity in detail.

Regarding LeCorbusier's central ideas for town planning, the basic concept is to elaborate an urban solution-type in the abstract as, for example, the basic "urban layout" first developed for the Salon d'Automne (1912) under the title, "Une ville contemporaine pour 3 millions d'habitants." (6) This plan would be the basic idea upon which

Lucio Costa's plans were based more than fifty years later, for the conception of the Brasilia Master Plan. The similarities between these two plans are total: both plans call first for a sort of Beaux Arts major and minor axis. At points of maximum traffic pressure near the central zone, there are no fewer than three superimposed traffic levels at the central station. The basic commercial and bureaucratic buildings cluster around this core area.

"And actually, these skyscrapers will contain the city's brains, the brains of the whole nation. They stand for all the careful working out and organization on which the general activity is based."<sup>(7)</sup> Lucio Costa's plan also divided Brasilia into two principal axis (the Monumental Axis and the Residential Axis) and in his basic report he states:

"The crossing of this monumental axis, of a lower elevation with the residential axis, imposed the creation of a great platform free of traffic except that headed for parking there, a calm area where logically were concentrated the amusement center of the city..."<sup>(8)</sup>

The housing sector envisaged for the "Ville Contemporaine" consists of entirely middle class housing (apartment buildings) grouped in neighborhood unities. Likewise, Costa's plan called for ninety-six such housing blocks, plus fourteen sub-blocks of doubled area whose elevatorless buildings were to be limited to three stories, as opposed to six in the single blocks. The blocks were to be laid out in

double rows on either side of the residential secondary axis, with its fourteen lanes of traffic, paralleling the Residential Axis and dividing it into upper and lower segments. Regarding spatial succession, each group of four blocks (neighborhoods) at the point of juncture was to have a church, a secondary school and a movie house. For the whole city, the same geometric and progressive scheme was adopted for different social groups in related local activities regardless of individual social differences. Within the neighborhood area, the intention was to facilitate the creation of a neighborhood unity in which a series of activities centering on the domestic and education were to take place on a local scale, in order to obviate any need for automotive or mass transportation for their execution. Although this seems to imply a view of the scientific method, the approach is not an unexpected one. All these solutions were elaborated first as an abstract solution type in which the real standards of social and economic life are ignored for the clearness of aesthetical composition using building blocks in a sort of pictorial composition.

Thus, these ideas are not taking into consideration such matters as the culturally and socially determined needs and standards or complex problems such as the probable mix of the social strata and their dynamics through time. This holds strongly for the squatters' settlements, for which there is no place in the well-defined and highly

standardized material provision made for the superblocks. As an investigator in a laboratory, the rationalistic process avoids all special cases and all that may be "accidental," always adopting an "ideal" site of form to develop with.

#### 1.1.6 The Rational City - A Structural Analysis

##### 1.1.6.1 Spatial Organization

The rationalistic logic accepts the "scientificism" as philosophy of order, and thus it would be natural that the rational city, as an object of study, ought to be initially reduced to an analyzable autonomous unity in which it is possible to find an eminent logic possessing evolving coherency, and as such, provisable through time and space as "variables."

The basic rationalistic assumption about the urban space is that the urban form can be considered as a coherent three-dimensional physically uniform object, upon which the human thought can reflect in grounds of "reason" to organize different social and economical spaces in logical formal structures. The result is not a real "social space," but a "configuration space," where the three-dimensions statically conceived substitute the complexity and dynamism of the real system. The aim of the physical design is to reproduce in this "configuration space" all the phenomena that the human perception learned from the sensible space. But, as the space in which we "see" is totally different from the vivential space, the notion of physical organization

of space will run through an inverse trajectory; starting from the ideal organization of a metaphoric space ruled by rational criteria toward the submission of reality at these principles and generic laws. At this point, the analytic geometry which is the geometric of the systems is transformed in a "geometry of the thought." The rationalistic space organization in this process begins assembling first a tri-dimensional plane upon which we can build the volumetric differentiation. The cartesian axes which are capable of guaranteeing accessibility toward any point of the horizontal system, can be performed by road feeders as a backbone structural element of the whole system. The global dynamic system can, by this way, be coordinated to a rational experience from the thought. The whole urban network is transformed in a clear, direct, and logical knowledge at the moment that we can correlate basic interrelationships with the laws of individual variation. But this clear physical knowledge has to assume a standardization on social behaviors and has to take into consideration a range of "medium" social values basically idealized, because the design coherence does not correlate with the social-economic topologies. Moreover, if we clearly define a certain "medium" social quality, less can be its degree of variation in relation with several other variables compounding the total system. This statement corresponds to the Cartesian criteria of clear evidence, purity and

separativeness of the phenomena, which philosophically means the over-valuation of the intuitive knowledge against the discursive knowledge.<sup>(9)</sup> In other words, clearness without individualization vis-a-vis individualization without clearness. The rationalistic structure can, only by this physical way, be coordinated to a rational experience from the thought. The whole urban network is transformed in a clear, direct and logical knowledge at the moment that we can correlate basic inter-relationships with the laws of individual variation.

The rationalistic spatial structure can thus be seen as a synthetic structure which tries to rationalize, formalistically, the reality. The best example of this fact is the Master Plan concept, where all the spatial sequences depend, each and everyone, on a systematic and complete formal structure capable of fostering locational certainty to all the future "actions." This apparent solution of the contradiction between dynamic social locations and design certainly gives to the general plan a powerful image, as a tool, of spatial urban organization vis-a-vis the "chaotic nature" of the "real world."

The rationalistic city thus considers first the physical urban object and later the social knowledge. On the other hand, the plan can be "easily" expandible because the new addition is, itself, equal to the old one; performing, thus, concrete cases which always justify the general

law. The city form is considered as a continuous physical achievement, homogeneous and quantitatively valuable. The coordination of the parts "profits" with the uniformity which would lose with contradiction or innovation. One zone of activity is thus considered "correctly" assembled if it succeeds a neighborhood zone with the same characteristics performing thus a creative, orderly and progressive system. The physical design reproduces itself without "accidents." The rational systems always try to achieve an internal physical coherence, an economy of explanation and an excuse to adopt external new and complex spatial elements which can "threaten" the scientific coherence of a design so well constructed that it can even leave behind "empty" spaces suitable for future unknown forms which, by that way, become, themselves, clear, allowing a forecast of their future spatial form. The development of the Master Plan is achieved through a system of unfulfilled present activities zonings waiting to be fulfilled in the future by the addition of new activities considered as equal as the present ones.

#### 1.1.6.2 User's Standards

The human users' characteristics are idealized and split into abstract levels as "clear" as their individual "specifications." The principal city's functions are classical summary distinction between work, housing, circulation, and leisure. For the rationalist's architects and

planners, the substitution of the urban chaos ought to be turned in a rigid transportation network, limiting the activities zonings equally "pure" and keeping between them correspondence between relationship of clear spatial association. In this process, simultaneity and overposition are eliminated, favoring aesthetic homogeneity and mechanical functioning. Summarizing, the urban rationalistic thought assumes:

1. That the city is a generic object, uniform and homogeneous; thus capable of accepting a general law of organization.
2. That this law or organization can be seen as a transference toward reality of a cartesian geometric structure as a backbone structure articulating a rigid zoning system. This zoning is assembled through idealized standards for the economic strata, as well as to the social behavior.
3. That the "aesthetic meaning" is achieved through a general diminishing of the symbolic effect of each architectural individuality, and by the external aesthetic meaning of "noble" architectural objects capable of communicating emotional and aesthetic messages.
4. That this whole urban structure under formation ought to be maintained aesthetically intact through a process of growing which reproduces the basic structural web or, under the impossibility of any future forecast for new activities through the reserve of vacant and green areas for the future locations, in order to at least maintain the whole urban object existing in space and time without significant symbolic changes.



#### 1.1.6.3 Brasilia's Spatial Planning: Lucio Costa's Plan (10)

---

What are the consequences of such assumptions in Brasilia, the city in which these methods have generated the whole urban physical pattern?

Once the Master Plan has fixed the Cartesian transportation structure (main axis) the several different activities are separated and connected: mixed activities are "isolated" in homogeneous activities zones in order to achieve "clean" activity zones. The banks in the banking sector, the local commerce in the local shopping sector, etc. It's clear that reality will change all these patterns, linked only by transportation facilities and zoning codes. Complementary and interrelated activities cannot be considered on such a system. On the other hand, the rigid spatial boundaries imposed upon each activity needs "death zones" for future expansion "built in between" in such a way that the urban structure is born spatially discontinuous to ensure mechanic functionality. We have, thus, formal order replacing human possibility. This paradigm is, itself, clear: as much as we try to give a precise shape for a certain location, as much we lose in its functionality and in its future possibility of interconnections.

The different space requirements also cause severe losses in human functionality if we idealize the different economic levels in order to overcome the economic barriers

through formal manipulations. For the housing sector of Brasilia, the plan projects three different economic levels located in three different and "democratically" continuous spatial locations. The basic assumption was that the distance to the center of the city for each social stratum will be the same for each socio-economic neighborhood equally located on space.

As architects and engineers, the "rationalistic planners" believe that the city is a system of buildings and land uses which could be arranged through aesthetic and visual values without taking account of the existent social, economic, and political structures. This belief is based on a utopian view of the society and in the possibility of achieving a "rational city" or "democratic city" through manipulation of physical variables. Lucio Costa did not ignore the social "gradations proper to the current regime regime"<sup>(11)</sup> as he states in his initial report, but attempted to provide for them by following a policy of physical determinism: "propitiate social coexistence to some degree, thus avoiding excessive and undesirable stratification," he states again.<sup>(12)</sup> However, the means used to avoid social and class stratification would be differences in density and/or in the living space per person or per family, employing more or less "expensive materials" and using various types of finishing, according to the social level of the users. But, when the political group

manipulates the "ideal plan," the final result was the achievement of high land values and the maximization of land costs in the low density residential districts of the upper and middle class, and the displacement of the low income strata toward "nonplanned satellite marginal zones" - as we will show in other chapters that the prediction that the major social distinction would be only physical is totally disproved . It is the economic discrimination on location, related with the job market and the new city's facilities, that are so distinguished.

#### 1.1.6.4 The Zoning System

The middle class ideology underlying the concept of a "rational city" also results in attempts to eliminate as "nonaesthetic zones" all the facilities, land uses, and institutions of the lower income class. Brasilia's "rational" plan neither made, for example, provision for tenements, rooming houses, second-hand stores, and "marginal" industry; therefore forcing them to spread out in the satellite cities in which all land uses are permitted.

The "official plan" divided the city in a correlation between transportation routes (based on individual automobile as the principal mode of transportation) and neighborhoods for middle and upper income classes. Favoring low-density and the automobile maximization use, the zoning codes sought to achieve the cessation of the residential mobility and increase the bureaucratic control of every

future growth. The only land uses programmed for future growth (within the plan's original framework) were for the high standard expensive superblocs. The city resulted, thus, in a static plan as a finished "objet d'art," favoring at the same time the small-town suburban type of living. As the zoning called for middle class life style for all, it did not recommend or even encourage building standards to enable low-income people to stabilize themselves as a "fraction" of the "rational plan." The concern of the planners with zoning the city, stopped at the physical limits projected; although the growth processes cover a much wider area, as low-income populations with their living facilities were beginning to move to the new "satellite cities" before the plan was even in the early stages. At the same time, rational idealistic zoning standards also contributed to accelerating land speculation. The land use's standards only deal with zones of activities without computing the effects of the highest levels of automobile accessibility in the central city low density zones. The rationalistic zoning assumption that excessive land coverage inevitably produces traffic congestion was only accepted to avoid urban concentration and densities, but for this reason produced "diseconomies" for the whole population. As a result, the public facilities are scarce and expensive, due to under-utilization (sewer system, water supply, transportation, etc.) and the governmental expenditures "per

capita" are lowering each year, while on the other hand, land prices, with the limited supply of land, are soaring. Moreover, some of those public facilities are already located in "empty areas" (shaped by the overall infrastructural residential and service axes), enabling private developers to earn huge profits. In some of these new residential areas, land prices speculation almost reached the land prices of the Rio de Janeiro's expensive seashore. It's interesting to notice that at the time when the physical plan was being elaborated by the architects, an independent commission studied zoning and the land tenure problem, and in its final report recommended that no piece of land would be purchased in a land market. The commission's proposal was a movable rent on land, varying according to inflation rates. They emphasized the "social aspect of land tenure" against future land market speculation. The position of the planners, instead, was to enforce the existing private ownership and control of urban land in order to maintain the static physical interdependencies of laws generated by the "rational" plan. As a result, the physical zoning concept of "object" of the Master Plan got transformed into fixed social interdependencies in order to prevent "violent" future aesthetic changes. The institution of land ownership and land market with government land gives rise to strong, nonspatial appropriation for low-income people who have, nevertheless, to share unevenly the expenditures of urban

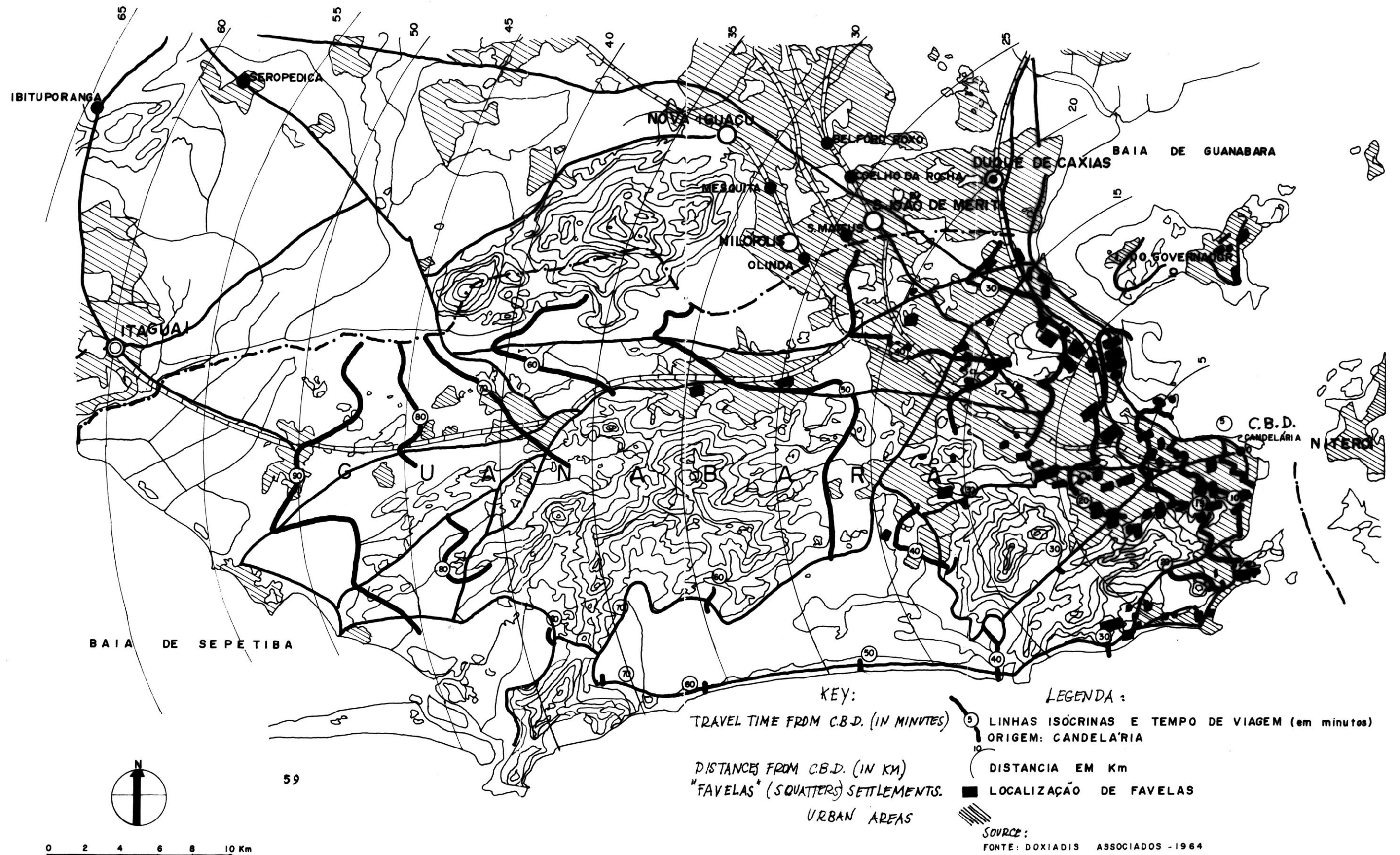
improvements through their social labor surplus (social overhead capital) and tax structure.

The landowners, in fact, take an extra advantage because they are allowed to control scarce urban developed land (within high rigid zoning standards) which only the government can provide. The potential social benefits deriving from increased urban growing get systematically transferred to speculation as higher land values and rents also rise at each governmental action to increase the quality of the city's facilities.

Finally, we want to establish a formal comparison between a pure zoning system (Brasilia) and an "informal," "chaotic," nonplanned zoning system (Rio de Janeiro). Map I shows the population distribution in both cities, related with time and distance to CBD. In the case of Rio de Janeiro, the black dots represent zones of shantytowns and "squatments." As we can see, almost all of these populations are located in a reasonable distance from the potential employment centers. In the case of Brasilia, these populations are scattered in several satellite cities around the central planned city. The effect of the zoning low density gradients is also clear; while in Rio de Janeiro, 80 percent of the total population of 5 million inhabitants are located within a 35 km distance circle and less than 50 minutes travel time; in Brasilia the same amount of population is located within a distance range of 10 km to

57 km and a travel time of 100 minutes, for a total population of 700,000 inhabitants. While in Rio all the urban land is continuously occupied, in Brasilia (Map II), each one of the satellite cities is separated by large stretches of vacant land functioning as a zoning "protective ring." The continuity is merely functional, and each satellite city performing the role of suburban "dormitory" settlement. From one example to another we have the path from the relative to the absolute segregation of the urban functions and classes through the "rational" zoning patterns.<sup>(12)</sup>

MAP I: RIO DE JANEIRO - POPULATION DISTRIBUTION AND C.B.D. ACCESSIBILITY



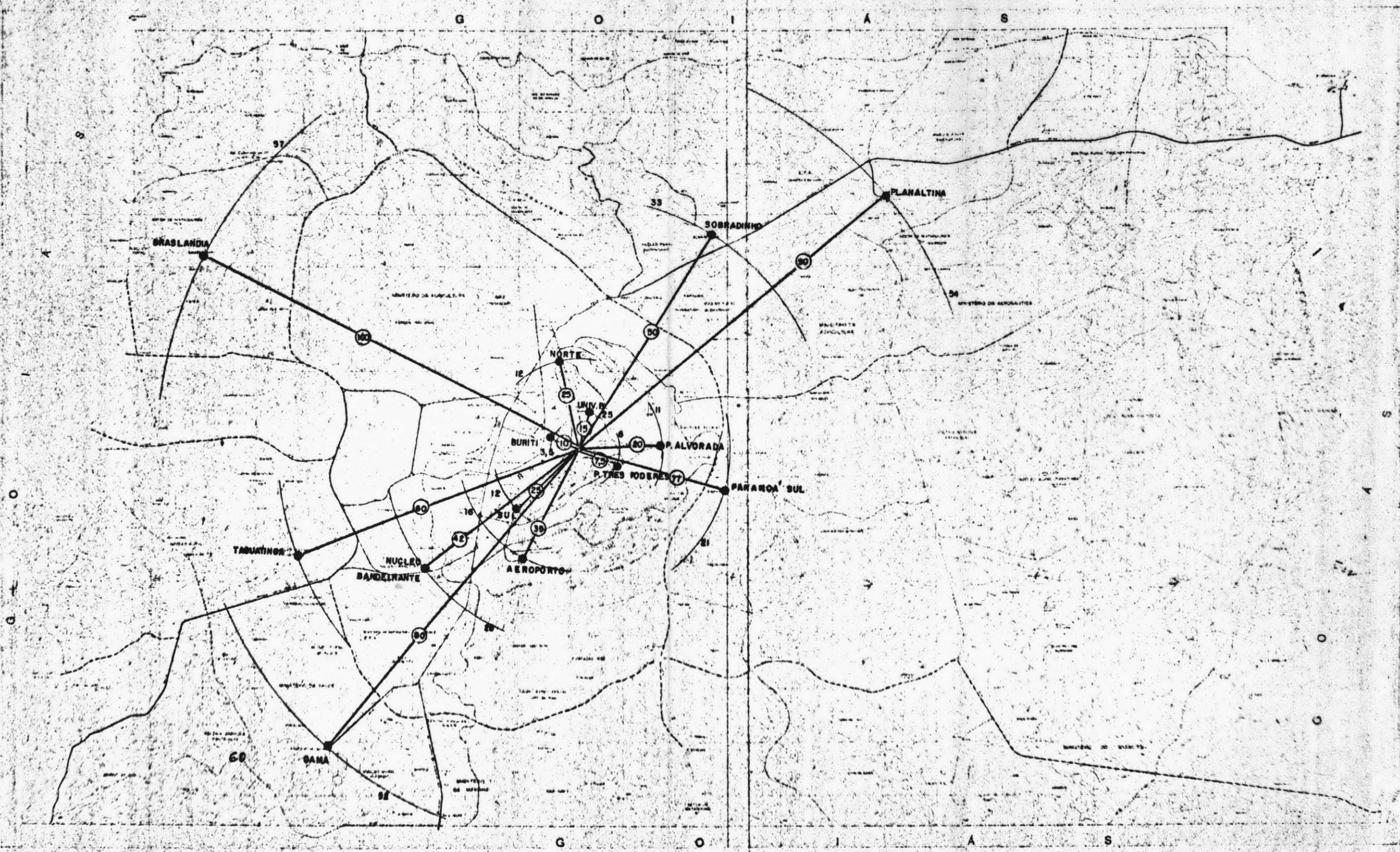


# MAP. II: BRASILIA - POPULATION DISTRIBUTION AND C.B.D. ACCESSIBILITY Mapa do Distrito Federal (FEDERAL DISTRICT MAP)

KEY: 50  
 DISTANCES (IN KM) FROM C.B.D.

90  
 TRAVEL TIME (IN MINUTES - BY BUS) FROM C.B.D.

C.B.D. (ORIGIN) CENTRAL BUS STATION (IN PILOT PLAN)



PART A: THEORY

## 1.2 Analysis of Brasilia's Alternative Physical Plans: A Critique on the Brazilian "Rationalist" Urban Design Methods

---

The competition for the pilot plan of Brasilia had great critical importance for an analysis of the "rationalistic" thought behind the modern doctrine of urban design in Brazil. In the first place, the diverse urban plans papers presented the contributions of the best Brazilian city planners and the opportunity for presenting a "physical design," disconnected from the major interdisciplinary considerations, proposed a "disarmed" vision of the formal schemes developed by rationalism; in sum, the idea of a city as a "pure design," as a completed formal scheme. Costa notes this point perfectly when he proposes in his plan a "basic idea capable of furnishing the immediate reading and comprehension of the city as a utilitarian object, understandable and analyzable at a glance."<sup>(13)</sup> Considering the fact that a city is founded and developed starting from the absence of whatever prior physical structures, even if we could consider the existing cities (Planaltina and Sobradinho) as evidence, there is no doubt that the creation of a capital in such a short time constituted a fundamental problem in urban design, regardless of the fact that, as reality would demonstrate, the original sketch hardly was transformed into an urban archipelago, now irremediably consolidated in its disequalities, disequilibrium and injustices. The first analysis to be made is, after all, a

proof that the presented projects sought to provide a prediction of the long term physical structures, based on the fact that a capital must mark its symbolic aspects by the perpetuity of its significant physical structures. There were no tendencies, of this type, for the creation of open structures supported in optional processes of growth, in which the creative cultural participation of the future population could be projected. "Humanism begins with language," (14) and it is at that epoch, the discussions about open-ended works,<sup>(15)</sup> about the creative participation of the population and in profoundly diversified language, while democratic, did not find the receptivity that today could be found. It was left to the users of the future to adapt to, or "strangle" the city (16).

At any rate, it is from an "anti-rationalistic" perspective that we see Brasilia today, also including at this point the contention over the creation of a "city-design," be it or be it not the capital.

We do not believe in the creation of the city as an "object," without community groups working out their respective spaces of everyday life, leaving both positive and contradictory marks, in all cases never uniformly in line with a culture. The difficulties of this position are evident, as we lose the certainty of a "clear performance" orienting all activities, but which reality demonstrates to be lacking in the make-up of a future urban scheme

formalized by its default.<sup>(17)</sup> Modern academism of a formal urban tendency has caused many problems in urban planning as it has in architecture. In reality, what we can get with rigid design is, as we saw, a "programmed immobility." The generations of professionals which arose have already tentatively observed the outcome of academic solutions of rationalism and certainly they will absorb the task of arming the structures of the future, enabling their transformations in rhythm or form, continually and dynamically adopting themselves to a renovation in their later lives. Understood as the cultural equation in which we move, we will see how in a general analysis, the principal characteristics of the alternative plans, besides that of Lucio Costa, presented at the competition for Brasilia. The purpose of this section is to look at different versions of these other rationalistic plans in order to underline their "method" and their main theoretical framework. We choose three apparently different plans in order to understand that behind an apparently physical differentiation embodied in each one, the same physical determinism and mechanical functioning are present in all of them, as a sort of planning ideology. However, we stress to what extent some of the "open ideas" used as "detail" in each one are potentially useful in order to build new opportunities for a more diversified spatial language.



1.2.1 Plan of João Henrique Rocha and  
Ney Fontes Gonçalves (18)

The Rocha-Gonçalves plan obtained second place in the competition immediately after the Lucio Costa plan, from which it is distinguished by not having a symbolic unity as the objective. The plan is a clear example of rationalist "as emblage": the zoning comprises an administrative "head" bordered by four eight-laned roads, two of them going to the contiguous and symmetric habitation zones, and the other two assuring accessibility to the autonomous commercial sector and to the industrial zone bordered by the residential zone of office workers and working class which is functionally connected. The solution resembles that of Costa differing in the isolation of the public transportation area in a central bus station used by Costa in his plan, as the center of the axes, without the creation of an autonomous zone of marginal traffice to the urban center. In the Rocha-Goncalves plan the traffic is organized peripherally in relation to the central administrative nucleus. This structure introduces the problems of concentric geometric systems: a great quantity of land remains disposable for the urbanization around the transportation structures and the posterior introduction of radial new arteries tending to transform the system into a radial concentric pattern increasing the functions of the peripheral ring. (19)

The functional delimitation of the center of the city

obtained by the peripheral roads do not end by the addition of equally important zones besides the zones destined for the administration like the commercial center or the transportation center which remain in this way, inorganically situated in relation to the center of the city. The functional distances between these activities of basic life-support and the administrative center requires transit access with a substantial loss of time. The residential zoning of the plan proposes a classical rationalistic system of neighborhood unities aesthetically composed with apartment blocks containing typically mixed and basically equipped middle class habitations: school, local stores and services. The proposition for different types of habitations acknowledges three types of housing levels within the same neighborhood: individual habitations and collective apartments of both low and average density. Despite the rigid rationalist design, the contiguity of these different types constitutes an "open" attempt in the diversification of atmospheres at the level of the basic cell. (20)

The functional organization of the plan establishes, in summary, a central zone for the government activities as a nucleus out of which the rest of the functional zones develop interconnected to the principal axis of traffic, composed by local roads of rapid traffic. The transference to the local roads of slow traffic are made by complete clover leafs. At the level of residential and commercial

sectors, the road crossings for pedestrians would be underground through walking passages. The residential zones are divided into two main sub-zones: one for the office workers directly connected with the government and the other for those inhabitants whose livelihoods are derived directly from the industrial or commercial activities or from independent services. For the industrial zones there would be the typical mechanical process of growth in which new residential cells would be continually added to the axes of rail and road circulation intermingled within the industrial zone, assuring an urban development of a "linear and continuous type," allowing for an "unlimited flexibility" within a prediction of up to 673,000 inhabitants in the year 2050. The solution merited criticism of the jury based on an argumentation that the growth of functional areas within the city, basic for a growing population, would implicate "undefined" limits. However, reality demonstrated to our view that the spontaneous process of the growth in the satellite cities obeyed principles basically similar to those predicted in the Rocha-Goncalves plan: with the urban growth, new complete satellite nuclei were being joined together to the principal axes of circulation without any long-term programming and a strategy of special events ordering these developments. Wilhelm<sup>(21)</sup> compares the urban growth of the region of Brasilia with the "linear cellular added" development proposed by the



Rocha-Gonçalves plan establishing an analogy between the spontaneous growth of the satellite cities and the proposal of linear development for the city region. As regards the functional spatial structure of the housing system, the Rocha-Gonçalves plan adopts a system of neighborhood units built around a "basic cell." The process of programming was classically based in the determination of "efficient" densities for the functioning of communitarian urban equipment and basic life-support services. A base population of 8,000 inhabitants was judged appropriate to merit a primary grade school for 1,000 students. From this can be obtained a few measurements: 1,600 inhabitants with an average of five persons per habitation, 12% living in isolated unifamiliar types for high income, 57% of the habitations in collective blocks of three stories for middle income and 31% of the total inhabitants in collective blocks of 12 stories for low middle income. The basic neighborhood cell, therefore, was composed with a set of mixed unifamiliar habitations in a lateral band, a central band occupied by residential blocks and the communal equipment divided into different topologies, one at the local level and the other an intercell commercial business and life support services serving a larger residential area. The "assemblage" of these cells resulted in three distinct axes of circulation forming distinct residential and commercial roads. Each functional zone of activities in each

join together with others in new cells to form units of a superior degree (neighborhood units) for every six units, allowing for an accessibility by foot of 1,200 meters or 12 minutes. The accessibility within each cell was calculated in six minutes by foot for the alternative residence-local commerce.

The physical implementation of the plan in the local topography brought into consideration the orientation of the transit axes in such a way that the solar orientation can propiciate adequate insulation for all the residential blocks in each cell. This established two fixed orientations: one for the residential area and the other for office buildings. Another consequence of this method was the delimitation of inter-blocks distances as a direct function of the maximum winter shade proportion projected by the different buildings. As a result, not only formal organization of the housing system but economical or anti-economical densities resulted from these aesthetical and physical optimalities. The process of growth of the city would be borne by the continuous addition of new modules: an addition in the administrative central area corresponding to the construction of a new residential module in the space closest to the center; a second addition of commercial buildings in the commercial zone; a third addition in the industrial zone, and a final addition for services in their respective zones. The process, although tentative of

modulation, falls into the typical difficulties of classical rationalism resulting in the following problems:

- The separation of the central area of activities and the forecast of new activities around the CBD left a large empty area for future development. It does not allow the emergence of the idea of an urban functional center in continuous change even outside the "symbolic" governmental buildings zone.
- The separation into slightly different zones does not permit the habitual scale economies of agglomeration for the low intensity of activities and low concentration of potential users.
- The predominance of empty spaces over built spaces (horizontal occupancy hardly reaches 20% of the total lots) makes the urban spaces poorly socially animated and the excessive individualization of the activities prevents the mixtrue of complementary activities contributing to the formation of undifferentiated spaces favoring a "neutral" life style.
- The urban framework does not take into consideration the diverse economical thresholds of urban growth in which, after a determined population limit, the workings of a new urban infra-structure must receive new massive investments necessary to build a new stage of proportional growth. The addition of "formal nonurban modules," despite the "logic" of the rationalist point of view, takes only into account an "additive" process of growth. Actually, neither the urban equipment nor the urban investments increases in the same linear reason in relation to the population growth. Maliz (22) clearly demonstrates this point in order to establish his threshold theory which for various predicted population sizes there exist diverse economic thresholds within which urban growth demands relatively constant limits of infrastructural investments. (23) Starting from a certain limit of population, the basic urban infrastructural investments grow until they reach a second threshold. Each phase of development in that way remains contained between two adjacent thresholds. It is possible in that way to establish the critical costs of investments

besides those which perhaps are not economically acceptable, since they arrive at a new threshold. It is acknowledged, by this, the notion of an efficiency tax, or be it, the calculation of the economic efficiency of an urban investment and the critical limits of the process of growth. The efficiency tax is directly proportional to the costs of maintenance added to the basic investments necessary and inversely proportional to the growth of the urban population.

A rational solution is sought which permits an economically controllable growth, taking into account the raw population curve and the infra-structural investments as a basis of the process of expansion and not only in the possibility of a geometric process for growth of the urban structures imagined by rationalist urban design. There exists also, a divergence between the process of growth imagined by rationalist design and the urban economic process. A comparison between the costs of investments for superseding different thresholds in different-sized cities shows that the major scale economies are situated in cities of more than 250,000 inhabitants, which makes us consider the hypotheses of several low density satellite cities as totally anti-economical. It is clear that the process of successive decentralization followed by the authors Rocha-Goncalves brings into account at least only the formal possibility of the addition of sub-nuclei without a basic consideration of their economic efficiency. This thesis is retaken in the plan of M. M. Roberto (24) when the authors propose a succession of urban nuclei with

population limits between 50,000 and 100,000 inhabitants. In one plan as well as in the other, the optimal population target hypothesis was not analyzed for economic performance but for the feasibility of a mechanical geometrical growth. The adopted process in rationalist urban design to encompass different hypothesis of urban growth is, after all, merely mechanical, not taking into account calculations relative to urbanization costs in future remodelling. In summary, the Rocha-Goncalves plan represents a clear comprehension and use of the classical urban techniques for the rationalist town planning within their limitations, in those aspects already criticized. The rationalist conception of urban design is insufficiently open and complex for a more dynamic and democratic comprehension of urban realities.

#### 1.2.2 The Plan of Rino Levi (25)

The Rino Levi plan presents a solution which is unique among the group of plans presented in the Brasilia contest. It is the only solution with zones over very high habitational density, and this basic premise conditioned all of the physical disposition of the proposed city. The hypothesis adopted was one which contained almost all the target population in residential mega-structures, forming large groupings of 48,000 inhabitants arranged in three super blocks of 16,000 inhabitants each. A so-called "intensive neighborhood" unit of these habitations contains the super-blocks situated on an axis of roads which connect them

directly to the urban center. The urban center in this way organizes all the residential groupings by using only three basic transit axes which integrate all the intensive neighborhood units. Beyond these limits the axes go on to form mixed types of habitational units, both extensive and semi-intensive for 15,000 individual inhabitants. These units look like the classic neighborhood unit, centered in turn around the local community center which contains the local commercial center, schools, clubs, etc. In these nuclei a gradation is proposed in which habitations of the greatest density are closer to the local community center (semi-intensive) and at the edge of the nucleus for the extensive types. The fundamental interest of the plan in our view is in the proposal of the intensive habitation areas. The utilization of mega-structures is not a new idea in the rationalist formal dictionary. Its use in this project is, nevertheless, extremely well studied and offers at the same time, some points for comparison with other strategies. Particularly in the discussion of the "ideal" population density for middle class housing systems.

The basic idea of the super block for 16,000 inhabitants is based on a system of high habitational densities. As we know today, the gains made by the new techniques for foundations, elevators, and steel super structures in continuous technological development insures new forms of habitational systems, particularly in the growth of densities and moreover in the conjunction of factors which can

facilitate economic use of urban space. The "cultural" restrictions to high urban densities are, nevertheless, strong and connected to a series of preconceived ideas of which the most common is that any increase in population density corresponds to a lowering of the overall quality of urban life. This idea is based on the fact that high densities of some actual cities are mainly "responsible" for the socially negative urban aspects. The emphasis on these pathological issues prevents the possibility, on the other hand, of observing the positive results generated by the intense density urbanization patterns. The typical example is the consideration of the neighborhood Copacabana in Rio de Janeiro by "rationalist" "architects" and "planners" who view it as the typical example of what is qualified as urban "chaos." In reality Copacabana is a narrow belt of land, limited by the ocean and the mountains, where a continuous intensive growth was established through three generations of buildings; first four, then eight, and now twelve story buildings. These buildings came to shelter a population of close to 200,000 inhabitants. The densities are very high, especially when compared to the rationalist "standards" (between 200 and 300 inhabitants per building). Copacabana has the greatest urban density in the city of Rio de Janeiro. The lowest local density being 566 inhabitants per sector, and the greatest being 1,146 inhabitants per sector. The mean density excluding plazas and streets was estimated by the Doxiadis Plan at 730 inhabitants per

sector (1956).<sup>(26)</sup> The figures from a study by the Department of Planning, in 1956, calculated a population of 273,180 inhabitants, with each inhabitant occupying an average of 20.2 square meters. These figures indicate that, if constructed on the basis of all the empty area still remaining and following the regulations and best estimates strictly, the total population capacity will be 634,380 inhabitants. In these circumstances the density of the developed area would reach 3,330 inhabitants per sector. Copacabana is also a district for the upper and middle income classes, and "Favelas" embracing a population similar to that of an administrative city like Brasilia. However, what is the social reaction of the residential population and the urban expectations of the occupants of Copacabana in relation to the urban environment in which they live? Recent work by Velho<sup>(27)</sup> tries to analyze anthropologically the district of Copacabana through a survey of one of its typical apartment building; apartments of the living room, one bedroom variety. The acceptance of the district by the middle and low middle class is great; this is reflected in the intense intra-urban migration from other classic middle class districts (Tijuca, Botafogo) from the suburbs and from cities of other Brazilian states. The majority of those interviewed did not change their occupational status upon moving to Copacabana. The unchanged occupational and income levels basically confirm the importance of a social preference for



the urban attributes of the district. Meanwhile, the people who leave the district seem to belong to the upper middle class, denoting a typically elitist behavior.<sup>(28)</sup> The reasons presented for the move were based on the accusation of "environmental pollution" or "social pollution" and in the pursuit of new locales more "pure," made possible evidently by a greater income level. For these people the move to Ipanema represents the recuperation of the "tranquillity" and "calmness" lost by the arrival of "intruders" accused of destroying the formerly peaceful district life.

The social composition of the typical apartment building analyzed by Velho shows the predominance of salaried professionals, students, domestic servants, civil employees (state and federal) and office workers (white collars) in a percentage of 52 to 60% of the total, or a proportion indicative of the predominance of the "white collar" worker. The image of the district was described by its average citizens, according to Velho, by the following urban qualities:

<u>Urban Qualities</u> (objective of response)	<u>Frequency</u>	<u>Typical Phrase</u>
1-shopping	43	best shopping in Rio
2-beach	31	"north zone" doesn't have any beaches
3-entertainment	24	you're not looking for things to do
4-apartment costs	20	
5-living	17	it's the only district in Rio where you can live

<u>Urban Qualities</u>	<u>Frequency</u>	<u>Typical Phrase</u>
6-relatives	16	I want to remain close to my relatives
7-transportation	15	it doesn't lack transportation
8-facilities	13	it has all the facilities everything is on hand
9-activity	13	Tijuca is very dead. Here there is a lot going on.
10-comforts and personal liberty	12	it's a district full of comforts. Here there is more personal liberty.
11-modernity	8	I like people who are up with the times.
12-convenience	8	for convenience, Copacabana offers everything.
13-privacy	5	it's nice here - everyone minds their own business
14-happiness	5	I came here to feel the happiness of the district

The questionnaire verifies that diverse positive qualities of urban life, such as happiness, animation, greater individual freedom, typical of areas of high density, result evidently from the facility for activities made possible by the scale economies (shopping, business, movies, etc.). According to Velho, "It's important to note that in the very rare cases in our sample of people who did not like Copacabana, the very characterizations of "traffic," "agitation," "noise," etc. became "anti-life" while "tranquility," "calm," "peace of mind" were defined as "pro-life" qualities. Further, "everything indicates that in a sector with a lesser predominance of white-collar population, especially in groups shocked by the "excesses

of urbanization" the relation is similar to the one presented by the minority of our sample"<sup>(29)</sup>. In sum, high populational density, the mixture of activities and the intensity of social activities must be reviewed if we want to establish a strategy of urban design based on the potentiality of riches that the urban social dynamic of the highly populated areas can create in the context of developing countries' urbanization.

The notion of high density areas is again adopted in the Rino Levi plan. With the habitational concentration in the residential mega-structures, the total area occupied by the city is obviously reduced, principally when compared to the classic all-horizontal solutions. On the other hand, the solution for the super-blocks presents some propositions of interest for the future development of middle class habitational systems in great densities.

The super-blocks incorporate the idea of the "internal street," originally used by LeCorbusier in the residential units of Marseilles. Within the super-blocks are included the local streets with local commerce and facilities at the community-cell level such as health center, schools, and stores. The blocks are built with metal-skeletoned structures, reaching a high of 300 meters and length of 435 meters. The transit access is made by elevated roads crossing the zone of the "pilotis" in each block. At these points the passengers board, assuring the pedestrians covered access from the "pilotis"

to the general set of elevators. These elevators, with capacities of 28 passengers and speeds of 210 meters per minute, and with intervals of 10 seconds between consecutive cars, would proportion the "output" of 10% of the building's population in less than five minutes.<sup>(30)</sup> The general elevators conduct passengers to the three internal streets for the horizontal circulation of pedestrians at the 20th, 40th, and 60th floor levels. In these areas are located all the common utilities for each unit of 4,000 inhabitants; stores, kindergartens, nurseries, playground-, health centers, all adjacent to an internal square. Access to the residential levels is made by local elevators, each with a capacity for 12 passengers and velocities, allowing for carrying 11% of the population in five minutes. The habitational cells within the steel structures are doubly expandable: horizontally, through the construction of new block extensions, and vertically by the possibility of the addition of new floors; both in phased construction. Structural stability is obtained by concrete towers for the elevators and by neutral empty floors equipped with all the public services such as water, sewer system, fire prevention, etc. All these populations are housed in a community formed by three super blocks (48,000 inhabitants), separated from each other by 400 meters and covering an area of only 64 hectares, the density approximately reaching the Copacabana density: 750 inhabitants per hectare.

Therefore, the urban image is easy to assemble and read; the urban center can be situated in great proximity to the residential areas for the middle classes and enough land can be left for unformal development around the tiny central area. The middle class buildings dominate the total urban panorama while taking a few sectors of developed land. However, the jury of the contest of Brasilia criticized these aspects of the plan, considering it inadequate for a capital to have the "physical vertical dominance" of the "housing blocks" in the urban profile, instead of the dominance of the governmental principal buildings as in the Costa Plan.

The concentration in super-blocks also permitted the total separation of pedestrians and local traffic by the elevation in viaducts of small passages of highways stretched between the urban center and the super blocks. Figure 1 shows us in the same scale, a comparison between the land occupation patterns of the Costa Plan, the Rino Levi plan and the two other plans described in this section.

The Rino Levi plan does not treat, however, the final consequences of the effects of the concentration obtained by the high density areas, since it admits the dispersion of the so-called "extensive" communities to the margins of the lake, beyond isolating the federal administration center in the principal nucleus of the city. One solution as well as the other would have been easily incorporated into the high

density group, adding to and changing the quality of living more efficiently.

In conclusion, the Rino Levi plan accepts, perhaps in that epoch - prematurely, the modern notions of concentration in highly mixed high density populations for the habitational sectors, finding through technological processes an urban image of economy and simplicity. An important social consequence is the reduction of the social distances between any suburban area and the central habitational areas of the upper and middle income populations, allowing for an intensive use of the urban spaces.

#### 1.2.3 The Plan of M. M. Roberto<sup>(31)</sup>

The M. M. Roberto plan is marked by a double reality realized by its interdisciplinary team, there is a lower degree of theoretical accuracy in its formulations for urban structures, than that technical presuppositions are prevalent, for example, in the studies for the implementation of the rural nuclei. This disequilibrium demonstrates that the interdisciplinary approach only articulated parts of the whole project, where some of the resulting positive points relected a high level of the studies and final proposals.

The urban plan starts from the principle of "decentralization in functional autonomous urban nuclei" going from the presupposition that a monocellular metropolis of 500,000 inhabitants will possess all the inconveniences of a megalopolis aggravating them all through the continuous

growth:

"The urban controls will be practically impossible and the private speculation would create the interminable expansion of the suburbs, and before the end of the plan's implementation there would be congestion, waste, and the confinement of inhabitants who would become prisoners in the "flames of traffic." (32)

Hence, therefore, the basic rationalist idea of the geometric decentralization in a series of urban units of 50,000 to 100,000 inhabitants, each judged "ideal" and linked by roads to form a "federation of urban units." (33) For the total predicted population there would be projected several urban units of 72,000 inhabitants each, enabling the metropolitan population to reach a limit of 1,260,000 inhabitants in fourteen urban unities. Only the buildings which were seats of the national federal powers and its immediate assistant organs, would be found in a separate urban center, and the other public functions would be distributed between the urban units, considered "equally independent." We argue that these "optimum" conditions for the cities of populations between 50,000 and 100,000 are debatable. There do not exist urban size calculations and studies particularly on the basic urban infra-structure costs; repeated in every unit, these very probably would be uneconomical. Another problem to consider is the process of implementation of the nuclei. This process of implementation has consequences in their own urban form; in the measures in which any unit surpasses another, be it in the facilities offered and even

by social stratification, there would appear, highly regarded economical and social urban zones, voiding the tendency toward "equalization and equilibrium." (34)

Certainly the development of an initial nucleus by the economic concerns would take the rest of the nuclei as dependents. However, the study of the growth of the urban units, although scoring the social value of stratification, considers important data such as the working class population of the construction camps, as we will see constituted an urban population officially considered as "marginal;" therefore established in a great hurry in satellite cities. (See Table XV) The study also included the formation of the rural dynamic as part of the formation of the urban settlement, and without doubt, owing to the interdisciplinary work, light was shed on the aspects involving the use of the rural space in the framework of a regional perspective. In this work basic predictions were made about the costs of implementation and construction, as well as the probable income distribution among different social groups. The studies on the rural planning included analyses on the use of land for various crops, areas for ecological conservation, the minimum parceling out of land for agricultural experimentation; all detailed down to the level of "modern farms." Such studies were recognized by the jury as the most complete of all in the contest. However, the technique developed in the regional studies does not correspond directly in its dimension determining of urban structures.



After the initial arbitrary division of "autonomous nuclei" each unit was dimensioned and formalized according to a distinct geometrical and "rational design." Each unit was designed as a circle to "escape from the usual regularity" and as "the form most simple and logical" to inject "more discipline."<sup>(35)</sup> The thrust of the units obeys a classical principle of 1,200 meters for a distance walkable in 15 minutes, in the rationalist belief that in that way public transportation could be "dispensed" with. A more accurate examination of the agglomeration economies, stemming from the daily time allotted to commuting to work, as well as the economic structure of contemporary industrial capitalistic society, certainly would deny such "ideal" vision. The laws of the centralization and/or decentralization are analyzed in other sections, and we hope to confront economical realities against the rationalist physical determinism, particularly in the case of Brasilia's urban form. Therefore, the diagram of the basic cell corresponds only to formal requirements and follows the nature of the geometric processes rather than the economic topology. However, an analyses of the geometric methods can be useful in order to understand the mechanism of the rationalist composition. The diagram of the basic urban cell, in this way, was projected by geometric processes:fixing the formal urban shape, the classification of densities follows a criteria of "proximity without promiscuity,"<sup>(36)</sup> accenting the low

middle class densities. From 100 to 150 inhabitants per hectare distributed in the classical habitational typologies; individual single family houses of one or two stories; residential and office buildings of two, three, and seventeen floors. In the center of every cell a mixed core of local life-support services and governmental institutions functionally subdivided throughout the diverse specialized urban cells: business, administration, etc. The traffic flows divided in roads of LeCorbusier-type<sup>(37)</sup> forming a fabric interconnected to the central ring, leaving the interior of each satellite cell to local pedestrian traffic. The systems of rapid transit cross the nuclei in their own levels, allowing for the transference of passengers in the core. There is an implicit "condemnation" of the use of the private automobile, left to be the means of transportation to the other units or for "pleasure" riding. The average distance of circulation within the neighborhood is 150 meters, within the sector, 350 meters, and within the urban unit, 600 meters. The reasoning, although geometrically logical, is inexact if we consider the dynamics of urbanization, and the market economy. The theory of central places of Cristaller<sup>(38)</sup> admits, for example, that the basic economic function of a city is to serve as a central place proportioning goods and services for the broad space which surrounds the core. The distances, external as well as internal, must not exceed certain maximum parameters forming

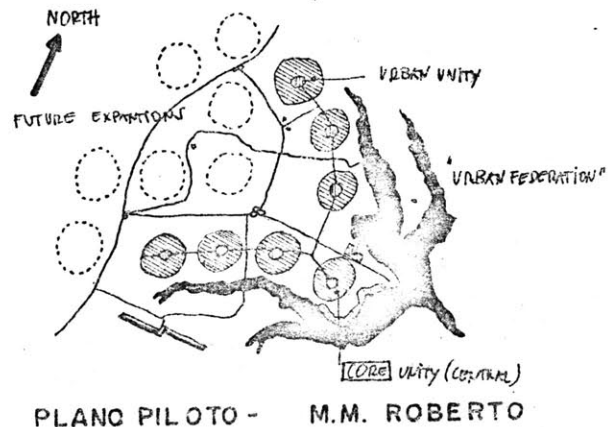
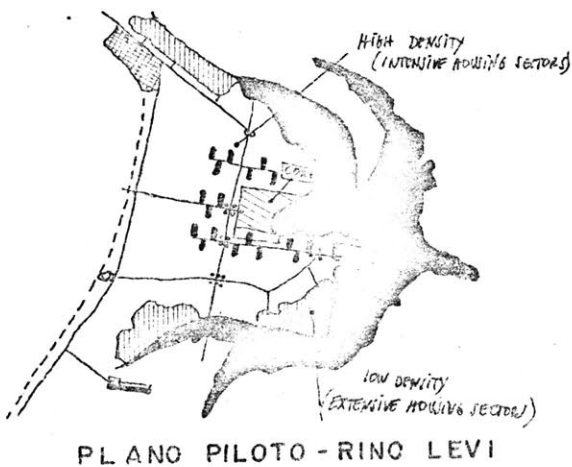
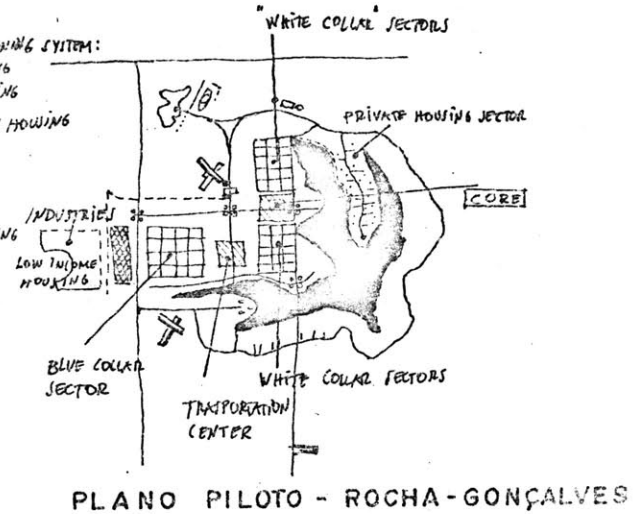
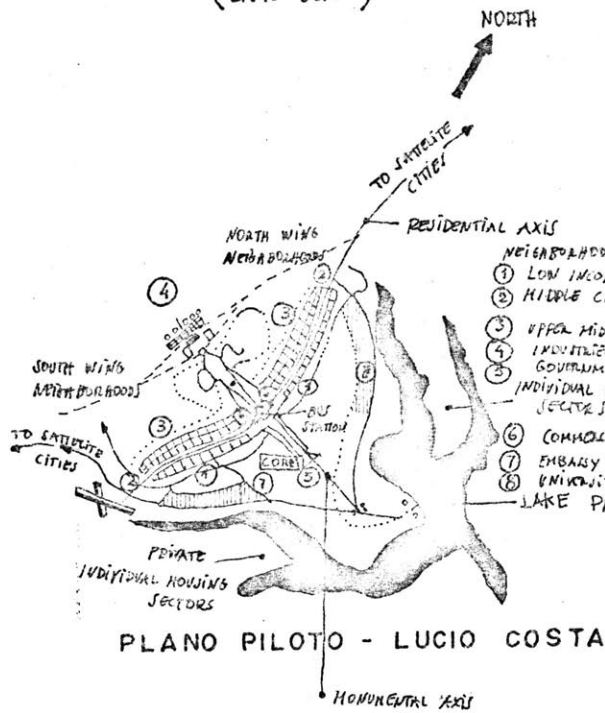
a network of "formal markets" whose centers and subcenter compose hierarchies of economical networks through different territorial levels. The idea calls attention to the structure of the urban spaces following principles which take into account the territorial division based on functions of supplies, transportation and administration unities. The improvements proposed by Losch<sup>(39)</sup> to this model refer to the advantages of putting the group of urban networks in an economical system in such a way that the urban form must consider mixing the networks which serve the populations of a lower income level with those of the other levels, not through geometric considerations but by a systematization of the main economic standards. Subsequent contributions came to configure the theoretical bases for a more realistic urban design that take into consideration, peculiarities of the market economy. Beckman,<sup>(40)</sup> for example, establishes how to calculate the population of an area of influence in any of the hierarchical levels proposed by Christaller. It becomes necessary, therefore, (if we want to advance in finding new "open" urban designs) to determine design criteria that permit a relatively dynamic formal configuration for these economic phenomena.

The idea, either of a fixed and static urban network or a geometric mechanical additive system cannot cope with continuous economic change. The design theory must cope with forms furnishing different combinations in order to

achieve different and complex urban designs at the level of creative imagination surpassing the deficiencies of the dogmatic geometrical urban form. A new urban space armed in this way would also permit a change in the generation of the new subcenters through the major or minor multiplication of secondary networks. Isard<sup>(41)</sup> proposes for these strategies a model based on the observation that the Loshian model implies a relatively high density of low income workers, and therefore of a population in the city core. The size needed for the market areas, in order to generate a sufficient demand of goods, is much less in the core than at a great distance from it. The conclusion is that at great distances from the city, the market area has to be greater; not only owing to the lesser number of industries situated there and consequently lesser population, but also owing to the rural population employed in agricultural activities which would be evidently more spatially dispersed. The Losh model, therefore, requires correction, resulting in "geometrically distorted" market areas that decrease in size and increase in population density as we approach the urban center. In the center, market areas are so small that they are almost reduced to individual locations of high intensity. This schema can be completed by the considerations regarding the creation of sub-centers within the metropolitan area by the comparative costs of a set of public goods. In sum, the market formation of urban spaces is not made at any rate by

"autonomous" units articulated by networks of transportation routes, but, economically, by the growth of complex economic networks which mutually determine dimension themselves, according with the function of a certain metropolitan economic equilibrium. If the urban design does not take into consideration these realities, distortions will appear under the form of economic and social inequality; as we will try to show in the following sections, dealing with the implementation process of the Brasilia Physical Plan in the context of an underdeveloped and dualist economy.

FIG. 1 BRASÍLIA: PILOT PLANS PROPOSALS  
(SAME SCALE)



## Part B: Praxis

## PART B: PRAXIS

### INTRODUCTION:

#### BRAZIL'S ECONOMIC AND POLITICAL BACKGROUND

In Part A - Theory - we have analyzed the historic origins of the main rationalistic assumptions in the field of urban physical planning. Now, in Part B - Praxis - we will analyze the nature and the extent of the impact upon Brazilian reality of these concepts. To do this, we will focus our analysis on the impact on reality of the rationalistic urban schemes, particularly in two significant economic and political realities: Brasilia as a city designed and built in the context of a national economic and populist political coalition vis-a-vis Brasilia as a city in the context of new strict capitalistic development with free market laws and in the absence of an institutionally broader political system after 1964.<sup>(42)</sup>

Therefore, the evolution of the city problems will be judged against these two following, different patterns or processes we assume will result in different spatial requirements and social relationships:

- Brasilia's urban form as an initial settlement not yet "colonized" by "free market" forces and therefore reflecting a certain mixture of social needs and personal requirements established somehow through consumer sovereignty and strongly based on the particularly exceptional institutional and practical situations derived from the early settlements of a newly planned city, and Brasilia's urban form emerging from the normal market forces when the spatial pattern already shaped collides with the new market values formed through institutional



markets in which decisions concerning the allocation of urban activities and resources are strongly made in the framework of the new market oriented economy, with growing governmental unilateral decisions.

We will look at urban locations and urban land and housing problems as different but coherent aspects of the overall contradictions between each of these two related issues. The conclusion to be drawn from these paradigms is that urban form can be analyzed as a function of the general political process operating in society. Therefore, any professional tendency to solve either "independent" urban aspects as land, housing, locational problems for establishing alternative choices under an individual and particular set of assumptions has to deal with the nature of the dominant economic models and the resulting social relationships and the prevalent institutions of society in order to forecast the impossibility or possibility of significant changes.

PARADIGM II.  
BRASILIA'S URBAN FORM AND  
POPULIST DECISION MAKING

2.1 The Populist Governments

After the world depression of the 1930's, it became impossible to provide for all the domestic needs, either of Brazil or of Latin American countries, by importing finished goods from Europe and the United States, because Latin American exports were brought to a drastic reduction by the international market crisis.

Even in those favorable international conditions, national self-sustained development had not reached a stable level. When the process of import substitution took place after World War II, the national markets of Latin American countries proved to be too small. The process of national development after World War II was also prevented by the economic entries united with the primary sector interrupting any process of change and reestablishing the dualistic society. After a longer or shorter time, duration depending on the economic capacity of the countries, the process of import substitution started local national industrialization.

In some countries, as Brazil, the political instrument to bring about national industrialization were in populist governments that took power through mobilization of the growing urban masses in the electoral process. These populist Latin American leaders were firm believers in

national capitalist development through private initiative, considering that the state's role as investor should be only subsidiary to the private sector. However, the traditional economic elite, in spite of the support given to national development by some industrial sections, was on the whole hostile to populist government. The populist government and the economic elite kept playing an economic game that Brazilian economist Furtado defined as the "privatization of benefits and socialization of costs" in public investments.<sup>(43)</sup> As the old economic elite was able to prevent increases in taxation and thus afford revenues to populist governments, those governments, to overcome financial deficiencies of the development process, had the only available financial alternative put in local currency, starting inflationary processes.

To accomplish the task concerning the implementation of national governmental development projects, it was also necessary for populist governments to create and manage new public corporations in which the state keeps a controlling majority. These projects demanding high capital and long range profits could only be developed in national terms by public or mixed corporations. The preference of private capital for the investment of early high profits rather than those basic and international sectors led the populist government to settle "national corporations" for the achievement of "national policies" for the economic development.

In this process, only Brazil, Mexico, and Argentina, the three largest countries of the region reached a higher level and started the state controlled production of intermediate and capital goods. However, autonomous development processes could not succeed becoming large exporters due to international divisions of the market and institutional barriers such as tariff - barriers adopted by the developed countries. Brazil, with her large population of more than 100 million inhabitants, was confronted with double limitation of the internal and external markets for industrial goods. Brazilian internal consumers constitute about only 25% of the total population which is an inheritance from her dualistic past. Fifty percent of the population is composed of peasants who are living at a subsistence level, practically out of markets. Half of the fifty percent that constitutes the urban population is composed of low income people, earning a minimum wage which is only enough to buy basic foodstuffs and does not allow the acquisition of durable goods. This market proved to be insufficient to maintain the spontaneous development of an "independent" capitalistic economy.

These obstacles to national development led Latin American governments to a growing interference in the economic sphere, with the purpose of promoting state-oriented development. However, the Latin American government's economic policy was never able to propose boundaries

between the sectors to be reserved for the initiative of the state and those open for private national capital or those for foreign capital.

The problem of middle-class unemployment gave the public corporations an excess of personnel that had to be employed somewhere. The consequence of these overall conditions was an increase in the cost of the "national development," giving arguments to political pressures raised by the traditional elite.

The populist economic model thus developed the economy in two ways: (44)

1. by the initiative of the state in basic economic and social sectors,
2. by increasing the participation of the new masses in the urban market represented by the lower urban strata electorally efficient as a "calculated risk."

In this process, the ancient economic elite was also favored by the general growth in the production and supply of commodities and the increasing expansion of their demand. The limits of the system lay in the compatibility between the growth of the whole economy and the increasing participation of the masses in the market. We can understand now the proposal for a new capital as an economic, social and political strategy necessary to cement and broaden the Brazilian national populist coalition in the 1950's.

The construction of Brasilia symbolized economic development and democratic political order. Economic development because the establishment of the new city stood

for the continental scale of the nation and the consequent unification of the internal national markets through the building of new roads; democratic political order by providing a sort of democratic fraternization "above class" for the task of building towards a collective technologically advanced future. The mobilization of popular and bourgeois support under Juscelino Kubitschek's government was achieved through the first comprehensive national planning, the "program of goals." This program in which the construction of a new capital was later included, was the first national attempt to build the alternative to a governmental central planning in developing countries. Therefore, the main distinction between this new approach and the former government's was the transition from a policy destined to build a national capitalistic system toward a policy oriented to a dependent economic development. At that time, the United States government was already convinced of the necessity of local national government participation in organizing and deciding on basic economic decisions as a political guarantee for the multinational enterprises. These facts explain how the construction of Brasilia and the rise of the multinational Brazilian automobile industry, for example, were considered as symbols of the Kubitschek achievements as well as symbols of the "new modern Brazil."

## 2.2 The Kubitschek Government: National Policies (45)

The election of President Juscelino Kubitschek was the direct result of a political and economic alliance between the PSD (Partido Social Democrático) and the PTB (Partido Trabalhista Brasileiro), and helped iron out the differences between the heterogeneous social forces supporting these parties. Although entirely dependent on its rural and conservative base, the PSD became identified after Getulio Vargas' government with the effort to promote industrial development under federal government sponsorship. The PTB had, on the other hand, consistently reinforced its working class commitment and left center ideological leanings; although as support for the parties spread from the cities to the rural areas, it had been obliged to incorporate all political contradictions expressed by regional ideological influences. This discrepancy between the role of the political parties at national level (cities) and their regional basis (countryside) had the final effect of forcing them toward national coalitions in order to build a nonpolarizing coalition. Moreover, this coalition was reinforced by an electorate that as a rule felt no lasting connection with the existing political party. The lack of genuine participation in the everyday political activities was a major factor behind the continuous and self perpetuation control of the parties by a tiny circle of professional politicians rather than by new competitive and innovative

elements. All these aspects explain how political association and alliances became the most important factor in winning elections at the federal level. Moreover, for a country as large and diverse as Brazil, different stages of regional development increased the divergence and uniformity of the political sphere. The north and northeast zones and the backlands of the central east and the central west, representing 41% of the electorate are still at a traditional and backward stage. The southern part of the country, which enjoys on the whole a more advanced and industrialized economy, represents about 31% of the electorate and is more inclined to modern forms of liberalism or welfare laborism.

Viewed against this economic background, we can understand why the Kubitscheck's populist government followed two contradictory lines of political and economic goals. The essence of this strategy consisted of a bargain between the central government and the Brazilian conservative elite, the basis of whose power-property ownership and exploitation of the rural agricultural complex, the government would refrain from altering in return for their agreement to a governmental Target Program which allows for a growing urban industrial modern complex. The key point was the assumption that the natural dynamics of the urban complex must inevitably provoke a corresponding structural change in the rural agricultural system by unleashing the natural economic forces that would unify the internal national market.



This problem had already been unsuccessfully tackled by the second Vargas government which failed to overcome the resistance of the "conservative" coalition formed between the rural oligarchy, the mercantile bourgeoisie and the traditional urban middle class, which in the end overthrew it. It was to avoid this confrontation that President Kubitschek adopted a double policy which only corresponded to a strategic postponement. The government energies were, therefore, devoted to carrying out the Target Program with the aid of any palliative that came to hand in order to avoid structural confrontation of contradictory class interests. During the Kubitschek administration (1955-1961) whose campaign slogan had been "fifty years of progress in five years of government," the Target Plan incorporating existing plans in a broader and more systematic framework, set up thirty-one targets grouped under six main areas: energy, transport, food, basic industries, education and the construction of the country's new capital, Brasilia. If we look now for the economic intentions, the construction of the new capital, besides the ideological and political factors, appeared as a coherent economic goal matching other specific projects. Therefore, more than 40% of the Target Program resources were allocated to expanding the production capacity of the energy sector, chiefly hydroelectric power and as subsidies for oil production or import. Likewise, transport accounted for the

second largest percentage of the estimated total investment required to implement the Target Program. The Program envisaged the construction of about half of the existing federal highways. In the capital goods sector, the most relevant goals set up by the plan were those for the motor vehicle industry. In the intermediate industries, the most important target was for the production of steel and cement. Brasilia can be considered as a coherent goal in this industrial context. For example, the mileage of the road network expressly built to link Brasilia with the other cities was as follows:

From Brasilia to:

Belo Horizonte	700 km	Belém	2,000 km
Goiânia	200 km	Fortaleza	1,500 km
		Acre	2,500 km

We can understand now the proposal for a new capital as an economic, social, and political strategy necessary to cohere and broaden the national populist coalition in the 1950's. Brasilia symbolized economic development and democratic political order. Economic development, because the establishment of the new city stood for the continental scale of the nation and the consequent unification of the national internal markets through the building of new roads; democratic political order by providing a sort of "democratic fraternization," "above class" for the task of

building a collective advanced future. The mobilization of popular and bourgeois support under Kubitschek's government was achieved through the first comprehensive national planning, "Target Program" or "Program of Goals." This program, in which the construction of Brasilia was later included, was the first national attempt to build the alternative of a governmental planning in developing countries. Therefore, the main distinction between this new approach and the former government was the transition from a policy destined to build a national capitalist system toward a policy oriented to a dependent economic development. At that time the United States was already convinced of the necessity of local national government participation in organizing and deciding on basic economic policies as a "political guarantee" for the multinational enterprises. These facts account for how Brasilia and the rise of the multinational Brazilian automobile industry, for example were considered as symbols of the Kubitschek's achievements, as well as symbols of the "new modern Brazil." However, if politically, Brasilia's construction was the basic support for Kubitschek's "developmentalism", the funds necessary to build the new city were provided by huge emissions of money (thus contributing to the nation's sweeping inflation) and by continuous overseas loans and credits.

The costs of building Brasilia, based on estimates by Lessa,<sup>(46)</sup> are in the neighborhood of three percent of

the gross domestic product during the period 1956-1961. As a result, if this period witnessed rapid growth and significant structural changes, it was also marked by increasing acceleration of the rate of inflation. Table II shows the growth per capita production from 4.9 in 1955 to 5.9 in 1961 (1,000 million of cruzeiros) or in consistent prices from 297.8 to 425.0 in the same period. Now, if we compare the rise in the cost of living index with the growth of the real per capita product, we will have an overall idea of the contradictory effects between economic growth and inflationary process.

As we can see from Table III, the growth of the real per capita product was 7.4% between 1952 and 1956, and 20.8% between 1956 and 1961; whereas the rise in the cost of living index was 22% between 1952 and 1956, and 290.5% between 1956 and 1961. This means, in effect, that whereas the rate of growth of the real per capita product increased 2.7 times from the first to the second period, the rate of growth of the cost of living index increased 13.9 times. In these circumstances, it became evident toward the end of the Kubitschek administration that the economic achievement and the construction of Brasilia were being paid for at an uncontrollably rising price, and that the rate of economic growth could no longer be maintained without drastic changes in the economic as well as political and social structures, in order to overcome distortions that appeared in each of

TABLE II  
BRAZIL: GROSS DOMESTIC PRODUCT

1949-1961		
<u>Year</u>	Total Production CRS 1,000 million	Per Capita Production CRS 1,000 million
	Constant Prices (1949)	Constant Prices (1949)
1949	215.2	4.3
1954	278.9	4.8
1955	297.8	4.9
1960	394.7	5.7
1961	42.50	5.9

Source: Getulio Vargas Foundation, 1963.

TABLE III

COST OF LIVING INDEX FOR RIO DE JANEIRO  
AND PER CAPITA REAL PRODUCT (1952-61)

<u>Year</u>	<u>Cost of Living</u>	<u>Per Capita Real Product</u>
January 1952	100	100,000
August 1956	222	107,000
October 1961	867	129,800

Source: Economic bulletin for Latin America--Vol. IX No. 2 November 1964

these areas. In the social area, the main distortion revealed that the unblanced growth of the urban and rural complex as well as that of the central-south region and the rest of the country were marked by an enormous and growing difference (Table IV) between levels of any of the significant social indicators as productivity, income, political participation, etc. The rural complex remained backward and semi-feudal. While the peasants represented 50% (1960) of the population, their share in the national income was less than 15%, and their share in the total income of rural and urban labor combined is no more than 27%. The same holds true of the other indices. This disequilibrium resulted from an uninterrupted economic and political predominance of the rural oligarquies with preferences for semi-feudal methods of production and organization. The fact that 50% of the urban half of the population spend most of their incomes on food, represents additional barriers to the expansion of the internal market; therefore reinforcing the conservative rural complex status-quo. In the economic sector, disequilibrium between income and wealth in the hands of a tiny urban minority were at the same time preventing the country's ability to raise the domestic savings ratio and rate of investment and creating inflation, which around 1964 became uncontrollable. The alarming growth of the deficits in the national budget can be seen in Table V. The difference between federal receipts and

TABLE IV

BRAZIL: DISTRIBUTION OF NATIONAL INCOME BY REGIONS

<u>Regions</u>	<u>1950</u>	<u>1955</u>	<u>1960</u>	<u>Comments</u>
North	2.2	2.0	2.2	"Natural" Economy (Fruits, Natural Fibers, etc)
Northeast	16.4	15.9	15.9	Impoverished Zone (Sugar cane, Fibers etc)
Central South	79.5	81.5	79.4	Leading industrial edge
Central West	1.9	2.6	2.6	Brasilia's regional location
Brazil	100.0	100.0	100.00	



TABLE V

A: RECEIPTS AND EXPENDITURES OF THE FEDERAL GOVERNMENT  
AS A PERCENTAGE OF GROSS DOMESTIC PRODUCE 1955-1962

<u>Year</u>	<u>Receipts</u>	<u>Expenditures</u>
1955	8.0	9.2
1956	8.3	12.2
1957	8.1	11.2
1958	8.9	11.3
1959	8.8	11.1
1960	9.2	12.4
1961	9.0	12.9
1962	9.0	14.1

Source: [Carlos Lessa], "Fifteen Years of Economic Policy in Brazil"

The deflated values of receipts, expenditures and deficits from 1958 to 1961 were:

B: BRAZIL REAL VALUES OF RECEIPTS, EXPENDITURES AND  
DEFICITS OF THE FEDERAL GOVERNMENT IN 1961 CRUZEIROS  
1958-1961 (N Cr\$ 1,000,000)

<u>Year</u>	<u>Receipts</u>	<u>Expenditures</u>	<u>Deficits</u>
1958	310.0	390.8	80.8
1959	291.9	365.9	99.1
1960	308.3	415.7	109.0
1961	317.5	455.0	137.5

Source: Banco Central in A Economia Brasileira e suas Perspectivas,  
 ana VIII (julho), 1969), Estudos Apec, quarta parte, sta-  
 tistical annex, F. 1.

revenues, as a result of continuous official policies of urban subsidies and paternalistic loans, was offset by increasing the supply of paper money, therefore increasing inflation in an ongoing vicious circle, as shown in Table VI.

In summary, these are the main characteristics underlying the political ideology of the Kubitschek populist government. In order to evaluate, now, the functioning of the populist urban decision-making regarding the initial settlements and implementation of the Brasilia Plan, we have to develop the following theoretical framework to show that:

1. Traditional, "old, unplanned" cities are more open; therefore "more democratic" for the locational needs, particularly for the low income strata.
2. Conversely, "rational cities" are less open due to a series of extra institutional constraints imposed on the low income population in regard to urban locational choices.
3. As a result, populist decision-making in the settlement of a new city has to operate in a political environment characterized by the inherent regressivity of the urban rationalistic schemes, vis-a-vis the political and symbolic necessity to enforce these new restrictive urban patterns through a political environment which allows for an electoral process and for increasing participation of the urban masses.

In order to understand these complex and contradictory processes, we will first compare "old" and "new" cities in order to evaluate firstly their degree of freedom and later the democratic willingness of the Kubitschek populist government to face the constraints for locational choices

TABLE VI  
RATES OF INFLATION IN BRAZIL 1950-1967

<u>Year</u>	<u>Rate of Inflation</u>	
1950	13.4	
1951	19.8	
1952	10.3	
1953	15.1	
1954	30.3	
1955	13.1	
1956	19.2	
1957	12.5	
1958	12.2	Kubitshek Government
1959	37.7	
1960	30.9	
1961	38.1	
1962	53.3	
1963	73.5	
1964	91.6	
1965	51.2	
1966	36.8	
1967	25.4	

Source: Fundação Getulio Vargas in Mario Henrique Simonsen, Brasil 2001 (Rio, Apec, 1969)

in Brasilia. Subsequent governmental policies (after 1964) will also be seen as a radicalization of the regressive rationalistic process under new restrictive market mechanisms which ultimately only brings a reinforcement to the original elitist purposes ideologically represented in the formalism of the Master Plan. A general conclusion that considers "new cities" less democratic to the participation of the low income strata than old cities is now mentioned in order to introduce the following argument.

### 2.3 The New City and the "Old Traditional" Cities: A Comparison

In order to analyze the impact on reality of the concepts described as characteristics of the rationalistic assumptions, we will approach the following "paradigm" in respect of the implementation of the rationalistic urban form in Brasilia: the creation of a new city implies a basic contradiction between the organization of an urban form on an environment without historicity and therefore without historicity of urban values. These values are not yet conformed to by everyday transactions and therefore they have to be enforced by institutions capable of molding the urban space in such a way that some current historic trends can be at least maintained. Our first task will be to determine in what extent the economic and social transactions underlining the use of space in a "new" city is different from the "old" and what these differences are ranked with in the

building of the traditional cities molded through centuries of economic history. We want to stress the interaction between space as a private monopolistic privilege in the "normal" urban markets in which several "owners" possess monopoly over pieces of space, and in a new city where at the beginning, the sole monopolistic landowner is the state. Therefore, allocation of urban spaces in new cities will occur following different patterns. In "historical spaces" private appropriation of space is a consequence of a contradictory process in which the private sector's interests are opposed by the use-values necessary to the reproduction of the productive process in such a way that urban form reflects these contradictions and the result is a complex system of intermixed uses and a consequent set of highly complex land uses and land values. In this process, the use of the urban space appears as a sequential historical process in which the bidding power of each individual and class are opposed. As a result, traditional and new urban form can be compared through some of their most important contradictions and social barriers.

### 2.3.1 Locational Constraints in "Old Cities"

Brazilian "traditional" cities reflect the national economic process of growing concentration of income as capitalistic relations begin to shape the national space. Spatially, the results in that Brazilian cities show a group

of areas developed under the old transit system (tramways) and those which result from a combination of the automobile age and the old patterns. Moreover, some areas entered the automobile age faster than others, depending upon their income level. The areas between the transit lines became very accessible to the automobile as ownership increased and the road systems were improved. A pattern of mixed social locations developed from this scenario. Some areas developed at much lower densities side by side with luxury neighborhoods. Changes in the central areas were also mixed: manufacturing and wholesaling were not totally replaced either by offices or services. The overall tendency is to develop both suburbanization and a series of "low income pockets" throughout the metropolitan areas. Suburbanization of lower strata is not total because the need for domestic services for the middle class allows a high percentage of squatter settlements to remain either in central locations or alongside wealthy neighborhoods.

For the medium and upper urban strata there is a tendency in the "historical cities," as income rises, to reduce food and housing-related expenditures either by changing the food quality or by building their own family house, or increasing family income through the purchasing of urban industrial appliance goods, such as a television, refrigerator, sewing machine, washing machine, etc. As an example, in São Paulo, 58.2% of the urban population lives

in rented houses in which the mean rent amounts to 19.4% of the family median income. From these disposable incomes, we assume a saving after the consumer expenditures. For the working class, we can only talk about a barely maintainable equilibrium between income and savings: actually the mean family expenditures observed in 1969/70 were Cr\$634,370, while the family mean income was Cr\$612,000; showing a real deficit of 3.6%. If the wage purchasing power would be maintained during the same period, with the family income following the price variations, the corrected value would be Cr\$739,380 in 1969/70. From these data we can understand how important for the low income families are the incomes due to locational advantages, near the CBD, particularly for the very low income strata, for which the main job source is provided by the civil construction jobs, which absorb unskilled workers through an on-the-job training education.

For example, of the total of Rio de Janeiro's urban population of five million inhabitants, there exists a 20% squatters population whose majority goes to work at places localized either within or near their residential zones. We have drawn a map (see Map I) showing the relative distances from the housing areas occupied by these settlers in the city to the C.B.D. On this map, we see that 90% of the favela population is within the boundary of one-half hour commuting time to the C.B.D. As a consequence of greater

funds, we have a great social and thus economic mobility for some strata, either by the appropriation of income differentials by location or by preferences for better environments which include better public services: the educational system, or the wealth of public networks. However, the Brazilian traditional cities' sprawl left behind either a series of "slope lots" or areas "unsuitable" for the normal marketable constructions or "decaying areas"; and as a result these areas near the job market were occupied by favelas and illegal settlements. In these areas, low income families took advantage of the locational incomes as they began to perform more skilled tasks in the workplace. Likewise, these areas allowed for the supply of domestic employees to the nearby middle class neighborhoods. Table VII shows the spatial distribution of the squatters families in Rio de Janeiro by zones and their quantitative relationships with the different workplace zones. This data shows that the percentage of the low income families working within their residential zones is respectively 50%, 66%, and for the south zone, central zone and north zone. (The west zone is considered totally rural and all their population works within the residential zone.) If we now compare this data with the Brazilian Metropolitan Locational Pattern (see Map II) we can see how the satellite cities in which the working class is located, as a result of the institutional restrictive policies, are isolated and distant from the



TABLE VII  
SQUATTER FAMILIES BY RESIDENTIAL ZONE AND "SPATIAL" JOB OPPORTUNITIES  
(CITY OF RIO DE JANEIRO)

	South Zone	Central Zone	North Zone	West Zone	Total All Zones
Total Number of Families (1964)	12.300	28.300	41.200	5.100	86.900
Number of Families With "Fixed Working Places	10.000 (75%)	23.000 (81%)	33.000 (80%)	4.000 %	70.000
I. Families Working Within Their Resi- dential Zone	5.000 (50%)	15.300 (66%)	22.000 (66%)	4.000	46.400
II. Families Working In Other Zones	2.000	4.000	17.700	-----	23.700

Source: Doxiadis Plan--1964

pilot plan (C.B.D.). Some of them (for example Brazlandia a typical low-income working class settlement is 57 km. away from the pilot plan) have a traveling time of 100 minutes for commuting. The following data is showed for these working class cities:

City	Distance from pilot plan (C.B.D)	Travel Time
Gama	52 km.	80 min.
Planaltina	54 km.	90 min.
Sobradinho	33 km.	50 min.
Taguatinga	36 km.	60 min.

Whereas in "old" cities, suburban neighborhoods are contiguous to the urban fabric, in Brasilia these satellite settlements are surrounded by empty land.

Returning now to another comparison, we can see in Table VIII the basic distribution of necessities and housing expenditures for the working class in São Paulo, in two different periods of time between 1958 and 1970. The most striking percentile increase is in transportation costs. Thus, while the housing costs percentile dropped from 30.0% to 23.0%, transportation expenditures rose from 2.0% to 8.8% (a percentile variance of 28% for lower strata, 26.9% for medium, and 19.3% for the upper strata). If we look at Table IX which shows the percentile increase in different expenditures shared by each low income subcategory,

TABLE VIII

SÃO PAULO: EVOLUTION OF THE DOMESTIC EXPENDITURES STRUCTURE  
(WORKING CLASS)

<u>Types of Expenditures</u>	<u>1958 (%)</u>	<u>1969/1970 (%)</u>
Food	45.0	39.0
Housing	30.0	23.0
Clothing	10.0	8.1
Health	4.0	3.6
Personal Hygiene	1.5	1.2
Housing Maintenance	3.0	1.7
Appliances	3.0	6.5
Transportation	2.0	8.8
Education & Culture	1.0	3.5
Leisure & Smoking	0.5	4.1
Total	100.0	100.0

Source: Dieese, São Paulo--1974

Key: Low Strata - Less than 2.74% of one official minimum wage  
 Cruzeiros--500,000 (1958 prices)

Medium Strata - From 2.74% to 3.10% of one minimum wage Cruzeiros  
 501,000-1,000,000 (1958 prices)

Superior Strata - More than 3.10% of one minimum wage Cruzeiros  
 1,000,000 (1958 prices)

TABLE IX  
SÃO PAULO: TRANSPORTATION EXPENDITURES STRUCTURE (WORKING CLASS)

<u>Items</u>	<u>Low Strata %</u>	<u>Medium Strata %</u>	<u>Superior Strata %</u>	<u>Total</u>
Vehicle Acquisition	5.2	13.9	58.4	36.6
Gasoline	2.9	7.7	12.2	9.5
Bus	91.9	78.4	22.4	53.9
	100.0	100.0	100.0	100.0

Source: Dieese, São Paulo--1974

Key: Low Strata - Less than 2.74% of one official minimum wage ~~Cruzeiros~~--500,000 (1958 prices)

Medium Strata - From 2.74% to 3.10% of one minimum wage ~~Cruzeiros~~ 501,000-1,000,000 (1958 prices)

Superior Strata - More than 3.10% of one minimum wage ~~Cruzeiros~~--1,000,000 (1958 prices)

we find that the economic impact of the different increases effects much more significantly the lower working class strata than the medium working class or the superior working class strata, not only in reference to transportation expenditures but to housing as well. Table X shows that the income increase for the upper strata is a direct consequence of income regressivity for the lower strata which suffer the consequence of higher percentile increases in almost all the different consumer expenditures, most of all in transportation expenditures. The conclusion is that housing expenditures are being lowered for the lower strata, either by relocation to cheaper and more distant suburban lots or by location in favelas; while the upper strata are using personal savings to change to more efficient transportation means, including automobile ownership for personal travel. Table IX shows the expenditures for different means of transportation for each working class strata. The upper strata spends 58.4% of their transportation budget on acquisition of private vehicles, 12.2% on gasoline and 22.4% on bus fares; while the lower strata spends 5.2% on vehicle acquisition, 2.9% on gasoline and 91.9% on bus fares. By example of Brasilia, we have shown how location is not spatially continuous. Therefore, for the working class there is a double income appropriation. First by the impossibility of locational choice near the pilot plan, second because the potential economic use of the adjacent

TABLE X  
PRICE VARIATIONS (1971) SÃO PAULO  
(FOR THE WORKING CLASS CONSUMERS)

<u>Items</u>	<u>Low</u>	<u>Medium</u>	<u>Superior</u>	<u>Total</u>
Food	33.0	31.2	30.2	31.4
Transportation	28.0	26.9	19.3	23.0
Housing	26.4	26.0	24.3	25.3
Leisure & Smoking	21.9	21.9	21.9	21.9
Health	20.8	22.2	24.2	22.6
Personal Hygiene	20.6	20.4	19.9	20.5
Housing Maintenance	18.3	18.5	18.7	18.5
Education & Culture	17.5	17.8	18.6	18.2
Clothing	14.3	14.5	14.6	14.5
Appliances	9.8	10.4	10.9	10.4

Source: Dieese, São Paulo--1974

Key: Low Income - Less than 2.74% of one official minimum wage  
Cruzeiros--500,00 (1958 prices)

Medium Income - From 2.74% to 3.10% of one minimum wage Cru-  
zeiros 501,000-1,000,000 (1958 prices)

Superior Income - More than 3.10% of one minimum wage Cruzeiros  
--1,000,000 (1958 prices)

land is prevented through the restrictive regulations stated in the Master Plan; as a result, the same amount of urban space location in the old and new city follows distinct patterns: relative continuity and a whole economic price spectrum for the old cities, and a regressive single "satellitization" choice for all working classes in Brasilia. Regarding the economics of locational choices, we can make one final comparison.

Table XI shows that the number of family members of the working families incorporated in the job market in Sao Paulo, grew from 1.0 to 2.0 persons in each family whose mean number of members grew from 4.5 to 4.9 persons. Therefore, the number of persons incorporated as new workers in the job market had doubled in ten years as the family size increased proportionally. Now if we consider the evolution of the real wages values in the same period (Table XII) we can conclude that real wages had fallen from Cr\$10.15 to Cr\$9.20. The increase in the working class families income is, therefore, due to the increase of the working members which had doubled in ten years. To confirm this hypothesis, we can look for the real decrease in value of the head family's wage during the same period. The monthly real wage had fallen from Cr\$8.54 to Cr\$5.42 (-34.1%). We can therefore see that extra family employment is a very important source of income. In Brasilia some of this informal employment such as domestic servants and

TABLE XI  
COMPARISON BETWEEN WORKING CLASS FAMILY-TYPE  
(SAO PAULO) 1958/1969

	<u>1958</u>	<u>1969</u>
Number of Members	4.5	4.9
Working Members	1.0	2.0
Monthly Income (Relative Prices--Crudeiros	10.15	512.00
Real Income (Crudeiros)	10.15	9.20
Monthly Wage (Family's Head)	8.54	361.03
Real Wage (1958's Prices)	8.54	5.42

Source: Dieese, São Paulo, 1974.



TABLE XII  
EVOLUTION OF THE REAL WAGE  
(SAO PAULO) 1958-1969

	Nominal (in Cruzeiros)	Real (Deflated from Inflation) (in Cruzeiros)
1958	8.54	8.54
1959	11.53	8.29
1960	15.86	8.67
1961	23.00	8.98
1962	36.79	9.36
1963	66.23	9.25
1964	121.20	9.61
1965	169.68	8.14
1966	220.58	6.88
1967	275.73	6.49
1968	344.66	6.51
1969	430.83	6.58

Source: Dieese, São Paulo, 1970.

personal services are prevented by locational disadvantages. Large distances between potential sources of employment and the residential areas prevent the social compatibility between domestic part time employment in middle class neighborhoods. Since for the lower strata, locational urban choices depend on the availability of a large informal job sector, we will further argue below that in large metropolitan areas the degree of these economic and social choices is greater than in "rationally" planned new cities, since institutional locational controls are submissive to a more effective community reaction against "economic losses."

#### 2.3.1.1 Metropolitan and Urban Locational "Control"

Large and traditional metropolitan areas lack a restricted institutional system to coordinate different local jurisdictions and to enforce a radical segregatory locational process over the whole urban area. Although there are interferences and the private sector owns the majority of urban land and absolute private rights are not affected by institutional interferences, in large metropolitan areas it is always more difficult and at the same time less political, to control all locational patterns. Therefore, spatial concentration in a great metropolis such as Sao Paulo for example, and a few other Brazilian capitals, coincides with the general advantages that permit the development of the capitalistic forces characteristic of the development of the Brazilian economy. For the capitalistic

economy, the disadvantages of the urban agglomerations end by being paid for by "socialization" of costs through the public sector's intervention for the provision and financing of public services. The explosive demand for urban services of all kinds remains unsatisfied because not only the urban population is growing too fast, but because income increases and the urban market mechanism are not able to meet these demands. And so the only way to reduce the gap between the provision of infrastructures and the demand for urban goods would be to continue the expansion of the cities and the urban economy in the context of the capitalistic framework. The conclusion is that, in the framework of urban capitalistic development, there is a tendency to intensify geographic concentration of activities which leads to "hypertrophy" of the metropolitan areas. It can therefore be concluded that "decentralized" decision making characteristic of capitalistic market decisions tends to be biased in favor of the metropolitan areas and of the superagglomeration of activities - a bias that is reinforced by the "socializations" of the economies of agglomerations, particularly by the absorptions of new urban and rural migrants in the labor workforce. These industrial reserve forces make up a large segment of the population that becomes mobile to the extent that the chains tying it to the rural structure are broken; they head for the large cities which offer better prospects for employment. In this intense urbanization process,

several factors explain the relative mixture of activity and the locational "liberal" patterns for low income strata and new immigrants. First, there are little governmental controls or even unilateral class control of the urban land. Even though landowners, auctioneers and subdividers speculated on the basis of individual market lots, the intensity of the migratory process, coupled with populist political coalitions prevented an intensive and regressive use of governmental discretionary standards and controls over the urban space. Location for the lower strata can be achieved either by the occupation by succession of the central areas abandoned by the upper classes, or peripheral location in lower priced, low density subdivisions in areas of urban new expansion or by location around old or new decentralized foci or economic activities where the main factors of household location were accessibility to employment and consequent reduction in transport costs, coupled with a spectrum of continuous low land prices. Moreover, local urban planning and institutional control is not integrated in a restrictive way coherently with other levels of the central decision making. The following example of control on land rights will highlight our argument.

#### 2.3.1.2 Land Tenure; Legal Rights and Institutional Control

According to the Brazilian Civil Code, the squatters' legal rights can be considered in terms of three time

periods: (47)

Possession of land for less than one year and a day may indicate a usurpation of the land by its possessors. The titleholder in such a short range situation can obtain an eviction order against the squatter with relative ease, through a special summary proceeding. The squatter is then given notice that he is to depart within twenty four hours. He is reimbursed for damages caused by his wrongful usurpation. However, when the land is held for longer than a year and a day, the Code guarantees that its possessor will be maintained summarily until he had been found the wrongful possessor through ordinary judicial proceedings. As a practical matter, this requires protracted hearing of proof that could tie up the squatters possession from two to three years. In this case a usurpation of the land is no longer assumed, and it must be proven that the squatters taking was, in fact, clandestine or violent. "The frustrated landowner will usually resort to threats and to bribery and could be successful in removing the squatter with these tactics." (48) However, the squatters legal rights have matured at this period of possession, and he may seek judicial help to preserve his possession or to restore it in the case he is removed by force. While the squatter will lose possession of the land ultimately, he can still receive indemnification for violation of his rights to remain if he was driven out of the land by threats of violence during the

period of just holding. In the case of Brasilia, however, all the "favelados" are located on public land. Thus the "favelados" in Brasilia as located on public land do not have the standing to request an injunction to protect their position. Unlike favelados on private land, they do not retain their rights to general claims to security of possession in the second period of holding (one year and a day). As in the case of favelas on government land, empty dwellings if discovered, are demolished. However, in large metropolitan areas, lack of adequate manpower to make daily removals lack of an adequate census or maps to "discover" new arrivals in the complex urban fiber, and lack of social and political conditions for resettling the favelados on state land has led local state governments in "old" cities to adopt a more democratic and "more generous" legal interpretation of the favelados' rights. The state must live with the favelados that it finds on its land, and even preserve under political pressure the squatters communities on private property. Unlike for the lower strata of Brasilia's population, however, the "squatment" on government land was simply the unique locational choice, for they were blessed only with political influence at the beginning of the construction process as they plainly lacked the money to resolve their housing problem in the face of the absence in the Master Plan of any land and housing market within their economic levels. The alternative was either

one of obtaining a legalized lot in a satellite town distant from the labor market, or squatting on government land near the official plan. Hence the decision to invade or squat on official land as in some abandoned superblock areas, in the forestreserve area, in construction sites and finally in the largest area within the perimeter of the Social Security Hospital. In all case, however, the local government had the legal right to move the favelados, with the argument that they are invaders of public land. Only a fear of a public incident which would reflect on the populist and labor credential of the government of the time, could change the overall official attitude regarding land tenure.

Therefore, in "traditional" cities, even in the framework of the capitalistic real estate and land market, the official planning process, while playing a role providing the development of the private sector, cannot control all locational patterns, and the result is a negative social "activity mix." Institutional planning actions, while willing to prevent private appropriation of land for low strata, are impotent as we have shown, to restrict "invasions" of public and private land for migrant families as their numbers increase proportionally with the decreasing capacity of the city to provide for the minimal infrastructural requirements. In other words, restrictive centralized planning is confronted with "community decision making." Institutional devices as zoning codes do not achieve control

in some areas, particularly those occupied by upper income strata. However, the urban governments in old cities are not interested by economic and political compromises in norms limiting speculation on land. Their main interest is to enforce zoning ordinances only in urban sectors intensely integrated in the real estate and civil construction markets. As a result, elaboration of a coherent regressive urban policy for the urban regulation of metropolitan areas is difficult, requires an impossible uniformity and coordination, and the elaboration of a single overall platform in concrete forms cannot be matched by conflicting economic and political interests. Consequently, some coercive and authoritarian institutional tools are prevented from molding the urban form in the total interest of the upper strata.

However, the accelerated growth of large "unplanned" cities in developing countries, emphasized and brought into sharper focus a series of "imbalances" occurring throughout the complexity of the urban space. The perception of these problems and the rapid growth of the so-called "marginal" populations in the large cities provoked numerous attempts to criticize "urban mixed" and "chaotic urban forms" from the standpoint of a "new conception" for "new planned cities." The core idea of this analysis stems from the concept that urban social problems are a dependent variable from the lack of social and professional control. Instead of pointing out these contradictions as contradictions of



the capitalistic development, the tendency is to attack the resulting "chaotic" urban form as responsible for the structural social problems and therefore proposing measures such as control of urbanization, control of population, zoning, standards, codes, suburbanization, segregation, etc., embodied in a new formal and controlled spatial environment of the "new cities." Therefore, the "new city" ideology tries to avoid the basic contradictory characteristics of capitalism by formally limiting the "old" system's dynamism and contradictions. New cities appeared thus in the context of an urban civilization as cities without "citizenship" characterized by the relationships between the calculus of forces in tensions and by the desire toward techno-bureaucratic "rational" role. In these cities, as we have shown, the everyday contradictory forces of urban life did not prosper, and instead of a political democratic system, an "enlightened professional autocracy" will define and channel contending social interests through the manipulation of social desires summed up in the idea of a "rational urban design" and controlled development. In the past, the Brazilian cultural elite frequently accepted the impotence of the liberal democracy, but the activation of the national duality through the industrialization process and molded the idea that with urban tension and struggle it would be impossible to implement "true" urban evolution.

### 2.3.2 Locational Patterns in Brasilia

In the case of Brasilia, the amplitude of the market choices is initially limited through the Master Plan's high physical standards. Here the consumer's surplus considered as the difference between what an individual actually pays for a good and what he would be willing to pay, rather than go without it, suffers a distortion as the Government provides a "fictitious market" in order to stimulate, for example, the economic warfare of the public servants not willing to change from the comforts of the "old" cities to the uncertainties and discomforts of the new capital.<sup>(49)</sup> The assumption that the consumers surplus will increase with increasing income of the group has to be corrected. In Brasilia, the first disproportionality is caused by governmental preferences as the different land uses allocated following the Master Plan are already biased not only by preferential locations but also through high use standards<sup>(50)</sup> and financial advantages. The richest group (public servants) has to bid the same amount or less than the next group to obtain the rights of occupancy in the prime location already reserved in central places by the framework of the master plan. Lucio Costa, the Brasilia Master Plan author, did not ignore the social "gradations proper to the current regime" but attempted to provide for them by following the policy of national physical determinism: "Propitiate social coexistence to some degree, thus avoiding excessive

and undesirable stratification," he states in his basic report.<sup>(51)</sup> However, the means to avoid this social and class stratification as we have seen, would be differences in density and in the living space per person or per family, employing more or less expensive materials and using various types of finishing, according to the social level of the residents. But, when we look at the building code standards, we can see that for housing typologies, only middle class apartments and row houses were provided in the pilot plan, following rationalistic volumetric and aesthetic standards rather than low class economic "informal" demands.

The degree of choice for urban location is greater for the higher income strata, and the degree of choice suffers strong institutional constraints in the case of new cities where the tight zoning controls the "a priori" location designations, introduces a new obstacle besides the protective and unequal operation of the "common" market laws. These locational constraints in the process of chosen environments is aggravated by the intensity of the migratory process, particularly in new cities.

The bulk of the migrants were unskilled workers attracted to Brasilia, among other things by the relatively high wages. In Brasilia, at the beginning of the construction, the minimum legal wage was close to the nation's highest, and nearly twice that prevailing in the impoverished northeast. If we look at the results of a survey by

the Department of Geography of Brasilia University on populational migrations, we can conclude that between the migrations toward Brasilia, the most significant flow is composed of the poorest economic strata coming directly from their original cities without suffering other urban experiences. These migrants, prevented from establishing themselves in the pilot plan area, have to choose locations around the satellite cities. As a result, a growing pattern of social and economic spatial segregation was achieved. The survey displays the following results:<sup>(52)</sup>

- 38.5% of the total sample analyzed had the following social economic characteristics: long distance migration (interior of the poor agrarian northeast zones), straight from this origin to Brasilia, earnings less than the minimum official wage, construction worker status, primary education;
- 14.05% of the total sample: migrational origin in the local state of Gilas or on the Federal District periphery; no prior mobility and same socio-economic characteristics of the preceding category;
- 8.9% of the total sample: migrants with urban origin (Rio de Janeiro, Niteroi, Belo Horizonte, Goiania, Natal, Anapolis and Aracaju). Migrants originated directly in their local cities had been recruited and brought to Brasilia by civil construction enterprises. They had the same socio-cultural status as the two preceding categories;
- 3.28% of the urban migrants: from the interior of the State of Sao Paulo. Same socio-economic status and intermediate path through the cities of Anapolis and Goiania.
- 2.67% of the migrants originated in the peripheral localities of Brasilia with more than ten years of residency in the new capital. They had a high rate of illiteracy and unemployment - peddlers with income less than the minimum official wage.

From these data we can see that the most important migratory flows did not pass a prior process of urban experience. The migrants came from their local agrarian zones directly towards Brasilia without any urban experience. Almost all of these migrants provided the hands for the job of building the "central city." In 1959, 54.5 percent of the labor force was employed in civil construction. Only 5.2 percent were engaged in commercial activities.

Since the official plan made no provision for low income settlements, temporary housing and impoverished solutions began to arise - location, for example, as financial security was the most important priority. These priorities change as income levels change.<sup>(53)</sup> The low income immigrant having recently arrived in the city is far more concerned with future than present security. In this case, proximity to unskilled jobs is essential. The locational pattern was highly correlated with proximity of jobs for the low income strata, since either tenure or transportation were irrelevant. Two types of official settlements then appeared: the "free town" as a "tolerated" area of shacks where the main commercial activity was located, and the proliferation of construction camps located near construction sites with the "permission" of the authorities. Squatment was largely tolerated by the authorities because the workers housed in them were required for the achievement of the goal of completing the new capital in time.

As the proliferation of construction camps failed to provide for all those who came to Brasilia in search of work, new migrants took advantage of the vast open spaces in the "holes" of the pilot plan and put up their shacks and sometimes tents improvised from truck canvases.

Hence, squatting occurred in a) abandoned superblock areas or in the forest reserved areas (green belts), b) a few commercial shacks which appeared wherever a construction site was active. These settlements were very small, since they would have to be able to move when under official pressure. The largest "squatment," however, was the Social Security invasion which began as a "tolerated" zone of shacks within the perimeter of the Social Security Hospital.<sup>(54)</sup> The settlement growth was assured because at that time the official attention was concentrated on the construction timetable. With the extinction of Vila Amauri (workers' initial camp) by the rising waters of the future city's lake, a number of shacks were moved to the social security area. Unlike the "old" cities, electoral politics do not provide a motivation for some "official interest" in the local squatments whose residents cannot trade their votes for official favors and "protection." Brasilia as capital city depends on the federal authorities for political decisions. Thus, the official policy was a "negative policy" to prevent the expansion of the invasions. The local administration maintained "inspectors" to prevent the

construction of new shacks.

We can thus understand that the location of the Social Security Invasion on the main road access routes to the capital is particularly important to those who think in this manner. Otherwise, the satellite towns, though their growth was in part the result of emergency measures, are an opportunity for those lower-middle income people whose security will be, by far, the most important determinant of their longer-term plans.

As the social security invasion, the other squatters' settlements nearby the plan have the following social advantages:

- The proximity of the market and warehousing center, located in the "free town" as a source of supply and employment. The daily market provides an opportunity for small trading in produce also.
- Because of its size, the Social Security Invasion also provided more security of land tenure than the other small squatments, some of them within the perimeter of the future constructions. Besides, the social cost of removing the social security invasion would be prohibitive. Most of the land was public and the structure of the "city" was growing. Businessmen were selling materials and goods, and a whole urban economy was ongoing.(55)
- Another important factor in addition to the access to the labor market was the ideal location in regard to the bus routes and the routes taken by the trucks which some construction companies provided for their employees or even for those who used bicycles. (see Table XIII)

#### 2.3.2.1 The Satellitization Process and the Populist Urban Decision-Making

Faced with the prospect of seeing the Pilot Plan

TABLE XIII  
MEANS OF TRANSPORTATION TO WORK OF HOUSEHOLD HEADS  
IN THE SOCIAL SECURITY INSTITUTION (IASI) 1967

<u>Means of Transportation</u>	<u>Percent</u>
Public Buses	44.4
Employer's Vehicles	30.6
Walking	15.7
Bicycle	6.3
Others	3.0
Total	100.0

Source: Social Service Foundation, 1967



surrounded by a ring of low income shanty towns, the planners accepted the idea of satellitization as a tool for preventing continuous social pressure as population increased. The development of Taguatinga gives a good example of urban decision making leading to an increasing process of spatial aggregation in which new locational patterns could be open for the middle and the lower strata without threatening the official settlement. Epstein<sup>(56)</sup> provides an accurate description of the politics underlying the decision to create the first satellite town of Taguatinga.

In the gold rush atmosphere of Brasilia in the late fifties, with the government preoccupied above all with the rapid completion of the main government buildings of the capital and masses of migrant workers and get-rich-quick operators flocking to the region, the orderly growth of housing and amenities for the lower classes was impossible. The solution these people adopted for their pressing need for shelter was an expedient familiar to other Brazilian cities and, indeed, one of the standard forms of urban expansion in all the underdeveloped countries: squatting. While a Free Town had been established with commercial interests especially in mind, this zone and other encampments soon proved inadequate and squatments began to appear in various regions of the future Federal District. Such squatments were largely tolerated by the authorities since the workers housed in them were required for the achievement

of the goal of completing the new capital on time, so long as they did not seem to pose a massive threat to the public order or to the eventual execution of Costa's plan.

However, eventually they did begin to pose such a threat and the emergency expedient adopted to deal with them proved as fateful for the future of urban Brasilia as the outcome of the original contest for the city-plan itself. The largest area of squatting was across the Brasilia-Anapolis highway, the main route from Sao Paolo, whence came most of the supplies for the construction effort. Ernesto Silva, one of NOVACAP's<sup>(57)</sup> directors and a participant in the events, recounts: "Nearly four thousand people installed themselves in less than a week. They lived in the most precarious manner" barracos (shacks) of old wood, cans, zinc sheets, cement sacks. There were no sewage pits; no water. Promiscuity and lack of hygiene. Everything built in a few days, especially at night, to get around the vigilance of the inspectors" (Ernesto Silva, CB June 4, 1967).<sup>(58)</sup> That Saturday, the president was visiting Brasilia and had been invited to dine in the JK Restaurant in the Free Town. A mass of people, perhaps as many as four thousand, were gathered around the restaurant, waiting for the president and bearing signs saying, "We want to stay where we are!" "Viva President Juscelino!" and "We have founded Sara Kubitschek Town!" Dona Sara was the president's wife, and the choice of the name was obviously

a maneuver to gain the sympathy of the authorities and even a subtle form of blackmail to prevent any move against the invasion.

It was necessary to do something rapidly, to avoid an incident that would not look good at all in the newspapers, and could even threaten the construction timetable if things got serious enough. Israel Pinheiro, President of NOVACAP, asked director Ernesto Silva to go and try to calm the situation. Recounts Silva:

"I climbed onto a wooden box and addressed the demonstrators. I told them that Novacap had already arranged for the creation of a satellite town, 25 km from the Pilot Plan, and in this place each worker would have his own lot and could acquire it for a reasonable price over a long term. I arranged with the committee or representatives of Sara Kubitschek Town, a meeting for the next day, Sunday, at 7 a.m. when we would show them the plan of the new planned city and examine the means by which the transfer would be made."

The President's dinner was nevertheless cancelled, and the next day the meeting did not go too well. Silva promised that NOVACAP would "move everybody, put up the shacks," and take steps to provide medical care and schools.

Silva puts part of the blame for the resistance on some businessmen in the Free Town who stimulated invasions because their residents were customers for building materials and later for food. He charges that they were among those who incited "indiscipline and resistance." Another reason for the resistance was the fact that the Free Town was one of the principal points for odd jobs and petty commerce;

living near it represented a form of security for recent migrants. To be moved summarily to a distant, empty location, dependent upon the whims of the authorities - preoccupied with the timetable for Brasilia, more than worker's welfare - would be at best a leap in the dark.

So the following Monday when the attempt to persuade the invaders to move was begun with the aid of two nuns trained as social workers, only one family accepted the idea. That night a hundred people marched to the provisional headquarters of NOVACAP, still demanding the right to stay where they were, while some allegedly proposed setting fire to the offices.

A series of additional attractions were offered to those willing to move. A mobile hospital was sent to the new city, Taguatinga, NOVACAP bought wood, nails, zinc, and provided them to the workers to improve their shanties. The shacks were located in the back of each lot as a symbol of the hope of future stucco construction in the front. Writes Silva:

"We dismantled the shacks, transported them, rebuilt them, transported furniture, utensils, men, women, and children. We built nearly a thousand sewage pits, one for every lot. We demarcated every lot so that each person already occupied his own lot. We put in a provisional water network, God knows how (He will forgive us!). We instituted daily transportation for the workers in NOVACAP and construction company trucks. We assured a minimum of medical assistance (CB June 4, 1967)."

In effect, then, the move was finally carried out (in ten days) because a series of advantages were offered, as well as because the dialogue between the government officials and the workers was essentially unequal, since the former were invested with legitimacy and potential police backing.

Perhaps because the difficulties of the transfer had put the fear of God (or of social tumult) into it, the administration moved in the next six months to consolidate the new, hastily installed satellite town. A school, a hospital, and houses for the schoolteachers were put in. A few months later an industrial school was built. One should note the difference in tone and orientation between the original Pilot Plan of Brasilia and the immediate, improvised, down-to-earth process ("plan" would be saying too much) by which Taguatinga was instituted. On the one hand, an aesthetic ideal, the lofty sweep of monumental design and its rhetoric; on the other, harried administrators, workers seeking a chance so far denied them, in an often grinding interaction, produced a solution that pleased nobody but met pressing and immediate needs.

The improvised creation of Taguatinga set the precedent for the creation of satellite cities outside of the watershed of the artificial Paranoa Lake. Taguatinga itself became the fastest growing segment of the Federal District, with the exception of the Social Security Invasion.

From this description we can infer that the double policy that President Kubitschek's administration adopted was transferred to the urban decision making. In order to avoid social confrontation of contradictory social interests, the problems were postponed in the political interest of the broad governmental coalition. Therefore, we can understand the double role of the government in proposing first the beginning of a social and economic process of segregation coupled with additional offers and attractions to those willing to accept. The dialogue between government and the masses was biased by an unequal treatment for those willing to accept governmental proposals while giving an "appearance" of democratic and spontaneous decision. In this sense, governmental incentives as higher wages, financial aid for housing and location, and the raise of continuous segregation were instruments for the shaping of the urban form in such a way that present problems were distorted by governmental interference. This explains the official acceptance of the relative and contradictory social mixture of shantytowns in the central areas at the same time that a process of "erradication" was in the beginning. These distortions were reinforced by the governmental policy of continuous deficit to finance political achievements. The public sector's continuous deficit was due to the insufficiency of fiscal revenues and by the underpricing of goods and services provided by the government-owned concerns.

In the urban areas the underpricing policies were an expedient for curbing rising inflation and this meant that transportation systems and huge urban expenditures were systematically increasing the federal deficit while "succeeding" in acquiring a basic positive political image in the great cities and in the new capital construction.

#### 2.3.2.2 Populist Governmental Incentives and Relocational Policies

---

The use of official incentives as land, public provision services, etc. as a reward system was aimed at altering worker's ways of thinking and feeling. Populist policies regarding urban relocation and the beginnings of the segregational process were achieved by making workers individual desires (housing, property, tenure) congruent with the governmental intentions and conflicting with the workers collective self-interest (job accessibility, use of urban infrastructures). The "reward system" contemplated those who played by the rules with concrete gains in terms of income status.<sup>(59)</sup> Moreover, the first to accept relocation in the new satellite cities took locational advantages in the new spatial areas, therefore molding a permanent new locational system in such a way that, over time, newcomers and migrants will not see the satellite cities as a social handicap but instead as the natural way to relate themselves with the job market in the central city. In this scenario, official incentives were coupled with private

enterprise incentives such as free transportation and free housing construction materials. While the government provided an underpriced bus service, many workers began to travel in trucks belong to construction companies, used to commute workers directly from their homes to the place of work. Since the trucks stopped only at satellite cities, they basically reinforced suburban locational patterns. As a result, in face of the low wages and great distances to the satellite cities, free transportation was used as official policy as a basic element designed to show the workers that it was to their advantage to accept satellitization. The second element in this strategy of subsidies was the provision of raw materials for the construction of shacks. A common source is the discarded wood used as mold for the reinforced concrete apartment houses in the Pilot Plan. This is of very little use to the construction companies, since it is difficult to reuse, and in the context of the public contracts in Brasilia, the higher the total construction costs, the higher the profit.<sup>(60)</sup> Therefore, waste in materials was computed as a necessary expenditure in the final cost components. So the gift of lumber is of little value to the giver and of considerable worth for the lower strata workers. As a result, the gifts of lumber to the construction of housing were channeled through a process of private incentives toward the satellite cities. Qualified workers were contemplated not only with the lumber but



with transport of the material to the new site. For the unskilled workers, they must as a rule hire a truck for the job. Location in these two cases began to divide workers' interests either by preferential locations or by income segregation. Moreover, in the new satellite areas, minimal public services were supplied to the extent of providing for the settlement of the new community up to a level necessary for avoiding social confrontation. Government policies regarding these satellite cities were heavily based on changing the "uncontrolled" locational patterns. Under the old uncontrolled settlements, the building of the city as a major task and the populist political coalition-government reaped the political and economic profits of the enterprise. In the second phase, as the city began to develop, the populist government began to assert itself in the control of the metropolitan area using urban incentives in order to create spatial subjection for the lower strata.

Should the national upper strata be willing and economically capable of bearing these costs of political stability, of an urban continuously subsidized system at least at the minimum political level of security, particularly providing the middle class with highly subsidized urban goods and the working class with a continuous subsidy in order to accept economic losses from segregated locations, this model of dual concentrated urban settlement could last "indefinitely." Brazilian political experience

has shown that when the upper limits of these social bargains were reached, economic and social development has had to have been rechanneled within the boundaries of strict capitalistic development.

Fixing, through political decisions, higher economic targets than those that were likely to result from the relative free play of the forces of the market, populist governments were relying on the mobilization of the urban masses to accumulate political power to choose and to obtain these targets in the electoral process. At the same time, these economic goals were embedded in the wider framework of a welfare system oriented to improve artificially the living conditions of the working classes in a way of answering their immediate needs. In this sense, populism represented an "artificial" victory for the masses, through a process of forcing the oligarquies to attend to some of the popular claims. However, these participatory processes did not impose any real redistribution of income and welfare because the system kept growing without any change in the underlying economic structure. While the whole system kept growing, a minimum of compatibility was always achieved between the increasing demand of the masses and the increase in the national economy, with the participation of the state for generating new means for social assistance. In the case of the beginnings of the satellite cities, this double strategy appeared through the concession of new urban

locations outside the central area, feasible through the continuous provisional state incentives as a viable urban basis for the first settlers. In the course of this process, many social sectors in spite of their potential or actual conflict of interest, were favored, although in the same uneven social terms, by the provision of restricted welfare facilities. The urban growth of Brasilia at its populist beginnings was maintained in the framework of such a dialectical system, in which the resultant inflationary distortions were accepted as a calculated risk. The urban system deriving from such economic strategies was therefore contradictory; while accepting some squatters' settlements near the central area, the government at the same time was trying to preserve institutional values and managed, through a policy of continuous economic and welfare incentives to move some of these populations to suburban locations, initiating the process of segregation.

#### 2.3.2.3 The Planner's Position

Segregational policies were enforced as shown in the Taguatinga example, more by political expediency than by a clear understanding of its underlying mechanism. In the whole process, the planners, by supporting a continuous attention to the problems of the Master Plan and the central area, contributed to enforcing a pattern of decision making through which the demands of the lower strata were always transferred from the bureaucratic and technological decisions

to the local political processes in order to alleviate pressure from the centrally planned area. Actually, the planner's concern with the city stopped at the physical limits of the Master Plan. We can see now the peculiar professional ideological weakness of the middle class intellectual planners when confronted with real socio-political realities. The main concern with formal order was precisely the cause of this inability to obtain a critical understanding of the whole social process. Moreover, the middle class professionals were frightened in their political and cultural framework by the huge ascent of the masses, which actually tended to "disrupt" the formal plan. And finally, what is worse, is that they did not accept any changes in their professional ideology in order to allow the participation of the masses in the framework of the new city, even when the political conditions of a populist government indicated to all, the historical feasibility of a similar project. As a result of their distorted professional ideology favoring physical and aesthetical achievement above all contradictions, the planners never gave their full agreement to the ongoing social process. As middle class intellectuals, they were gratified only with the task engaged in the official planning conception, and not in the implementation problems. They accepted the social benefits of building the city and the palaces as an opportunity to test their professional ability to participate in historic events, but

they never had any tool to gear the development of the informal urban sectors as soon as these difficulties began to be felt. We can understand now how the dualism of the Brazilian society can be reflected in the dual consciousness of the planners. The double position of the planners corresponded at the professional level to the double position of Populism and the fact that middle class involvement in the process of populist development was superficial and opportunistic, and was easily broken and changed into positions of extreme hostility toward the lower strata, as soon as the process was changed through new institutional crises. (61)

PARADIGM III  
URBAN FORM UNDER NEW GOVERNMENT INTERVENTION  
TO ENFORCE "FREE-MARKET" TRANSACTIONS

3.1 New National Urban Policies

The crucial question for understanding the government policies in Brazil after 1964 is the feasibility of the overall new national economic model's external capability to bear the costs required for subsidizing the system at least at the minimum level necessary to maintain its economic viability. Therefore, unlike the main characteristic of the former populist model, the main problem is not the discontent of the urban masses which can be controlled by the absence of an electoral process, but the dissatisfaction among the middle classes. As a result, a double institutional strategy was devised.

First, for the lower strata, the adoption of means of reducing their demographic pressure, coupled with the need for a territorial allocation and containment.

Second, for the middle classes, the subsidizing of a system of consumer goods at least at the minimum level necessary to maintain the industrial development and the operationality of the internal markets, and the export sector.

As for the first strategy, government programs aimed at channeling internal migration, either by building the

National Highway Network and the Transamazon Highway, or through plans for "dispersing" metropolitan and urban growth, preventing lower strata from taking advantage of the scarce amount of investment for urban infrastructures. Therefore, public investments can be mainly channeled into economic development, particularly allocated for key sectors of the economy. As a result, the amount of investments available for improving urban centers has been reduced, and the most rapid growth in the Brazilian cities has occurred, not within the central socially and economically equipped area, but in the satellite cities near them, with a striking pattern of disequilibrium between social demand and institutional supply of urban infrastructures and social services. The city of Nova Iguaçu, a metropolitan "suburb" of Rio de Janeiro, as an example, grew from 135,000 people in 1960 to 732,000 in 1970, and to an estimated 1,000,000 in 1973. The continued growth of the urban labor force, while economically "functional," is considered "dysfunctional" from the perspective of the pressures it can bear, either in the central areas or in the middle class traditional neighborhoods. Since the new economic model depends largely on the external inputs to overcome the internal lack of economic expansion, it's not feasible for the system to adopt any kind of inflationary subsidies from the urban masses without decreasing, as a consequence, the middle class demands. As for the second

item, the system, while requiring compensatory subsidies for the middle class, such as housing and automobile financing, strives to restrict the social demand of the masses by restricting spatial locations in the central urban areas. In this process, housing subsidies reinforce the regressive allocational patterns by increasing land costs and reinforcing suburbanization and segregation. Some basic assumptions of the new model were aimed to maintain the social order at the expense of the national political institutions in terms of the following basic requisites:

It would require a substantial reinforcement of the state, contrary to the expectation of the laissez-faire liberals. However, such a reinforcement was designed to enable the state to extend its intervention in the economic sphere in order to ensure a minimum of economic stability.

This model would establish under the supervision of the state the "free market" mechanism, ensuring the private enterprise the full control and management of the economy, chiefly in sectors such as housing, using loans and financial subsidies.

Finally, the model assumed that economic development without changing the existing social duality and order. The historic lessons of the incompatibility between a nationally oriented populist development and the maintenance of the existent order allowed the elite to choose the help of



external factors and the development of a model on the conditions of dependence for overcoming the structural distortions while leaving the existing dualistic order intact. How these macro-policies affected Brasilia's urban growth patterns will be analyzed in the following sections.

### 3.2 Brasilia and the Institution of Official Housing Financial Markets

After 1964, with the National Housing Plan, the demand for urban land for the building of a new housing complex increased significantly. The Plan was aimed at the elimination of the national housing deficit through a complex financial system under the management of the National Housing Bank. This system sought to increase the demand for housing by creating incentives to the private civil construction sector, increasing therefore the supply side.

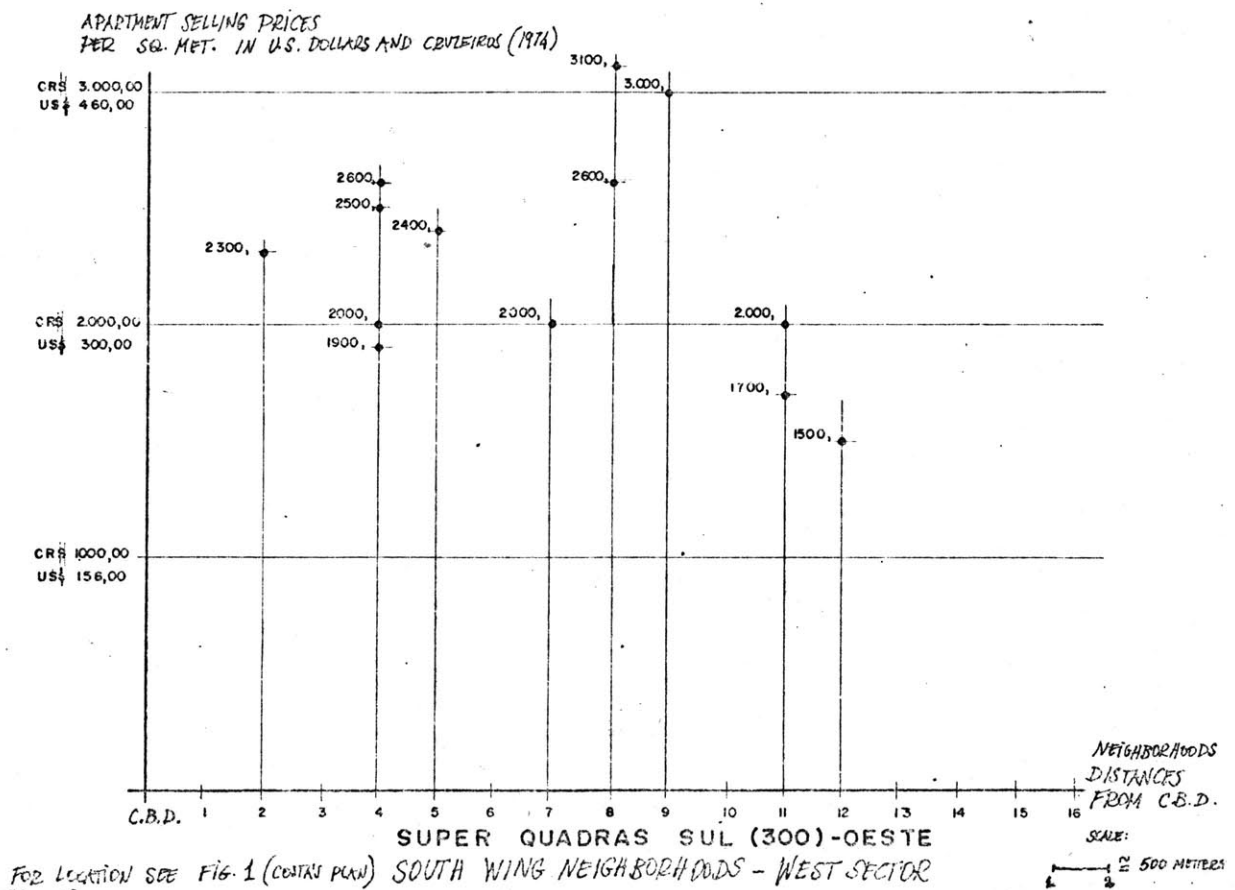
However, the first direct impact of the plan was the immediate increase in the land market prices. We can suppose, since we don't have enough data, that the repercussion on the land market of the increased financial sources allocated to residential buildings had direct impact on the increasing land costs observed since the implementation of the Plan. While in the developed countries, land costs tend to decrease as a percentage of the national income, the converse phenomena seems to occur in the developing countries. In the United States, the values for land costs as a share of the national income decreased to 53% (1890),

to 29% (1929), and to 16% (1948)<sup>(62)</sup> Grebler). In Rio de Janeiro, the government official system financed between 70 percent and 90 percent of all real estate "official" transactions.<sup>(63)</sup> The private entrepreneur also could utilize the system to finance the acquisition of construction materials. Moreover, with the institution of the monetary correction as a guarantee against inflationary devaluation, the investments in the continuation sector shifted from the purchase of land and existent apartments to the investment of a considerable amount of capital in new housing development. Due to the structure of the demand (chiefly middle class), the demand for urban lots concentrated in these urban sectors which could provide higher standards for intensive occupation. In other words, more permissive and intensive high physical zoning standards. As the price of land is directly correlated with the coefficient of permitted use, central and residential areas with higher permissive building area standards increased their land prices. While in "traditional" cities these areas correspond to areas in different neighborhoods located alongside larger streets and avenues, in Brasilia the preferential economic area corresponds to the whole area within the boundaries of the Pilot Plan, since there six-story buildings in each neighborhood are the only opportunity for sound financial investment. While in the traditional cities the most valuable areas correspond to

those areas surrounding the larger streets, since the number of apartments is a function of the size of public facilities; in Brasilia all the area under the Pilot Plan widely served by overdimensioned public services suffered an identical intense process of valorization; preventing therefore the last attempts for a liberal social gradation. Since the build area of the Pilot Plan accepted the local higher density standards with restricted supply of land, it follows that after the National Housing Plan, housing prices in the central area rose vertically. With the liberation of market forces and the end of the government "paternalism," free market forces began to reshape the urban space. In these new conditions, housing prices commanded the process to assign land prices as the market prices for habitational unities began to command correspondent land values. As in all sectors of the economy, the real estate market began to concentrate in supplying the habitational demand for the higher strata. In Rio de Janeiro, for instance, the demand for housing was almost entirely localized in the south zone neighborhoods, through demolishing one-family dwellings and replacing them with high-rise buildings. However, in Brasilia, the rigid standards and zoning regulations prevented the more intensive supply of land. Therefore, comparative prices are even higher while the city continued to be surrounded by a green belt of empty land. While inflation between

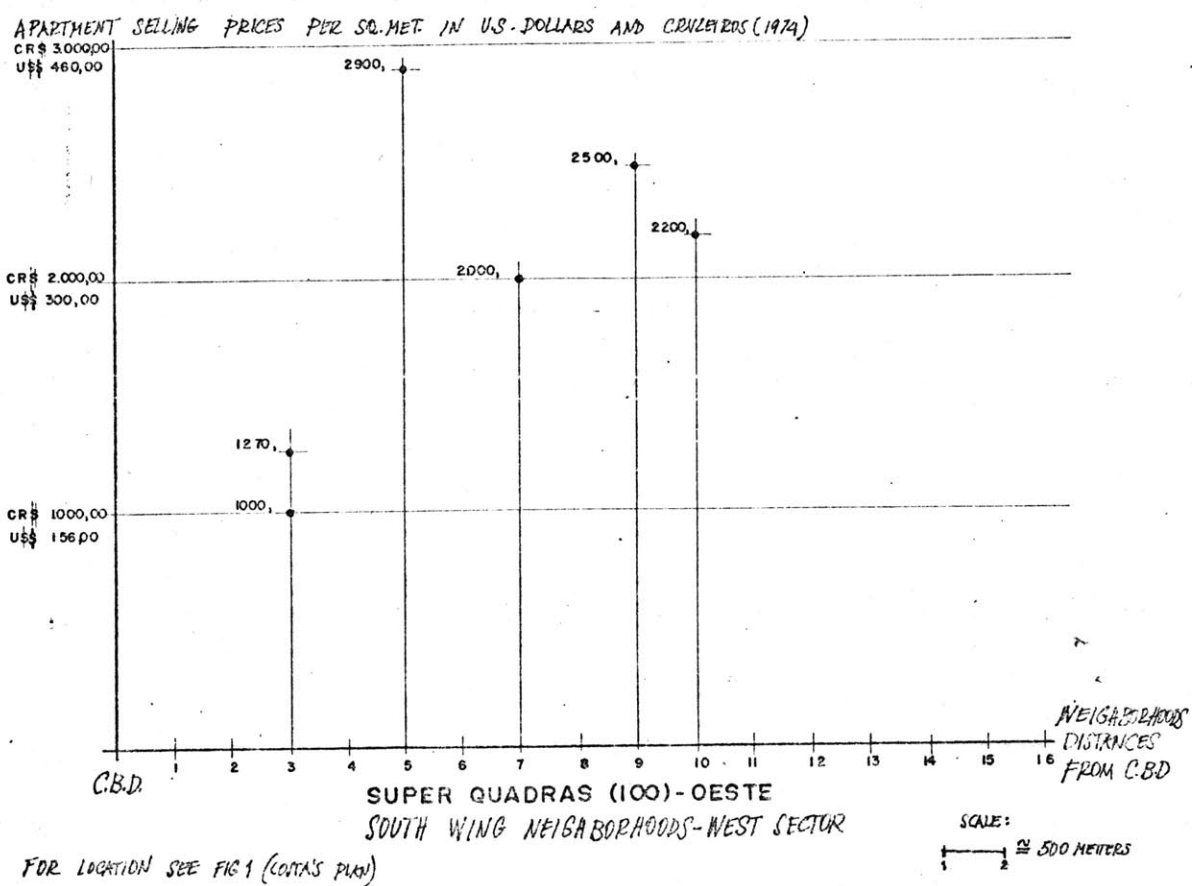
1970 and 1972 was 40 percent, land prices in Rio de Janeiro rose 126.0 percent<sup>(64)</sup> and probably more in Brasilia. In Figs. 2 to 5<sup>(65)</sup> I mapped the prices by square meters of different apartments built in the Pilot Plan. Each different neighborhood was disaggregated to show price levels for each income category. While in the upper and middle upper class neighborhoods (100 and 300), prices are higher than in the so-called medium and low class neighborhood (200 and 400), their values decrease slowly from the center of the Pilot Plan (C.B.D.). Therefore, apartment prices for the entire city show little sensibility for differences in income levels and for physical distances from C.B.D. Actually, land and construction costs only significantly decrease in the satellite cities where mixed and liberal zoning regulation not only accept poor building standards but an economic mix of activities. Those submarkets are therefore similar to those of the traditional cities. As a result, the Pilot Plan's residential sector became the best opportunity for economic investment and under these conditions, highly dependent on the official policies regarding the housing supply. From this point of view, housing and the whole financial sector devoted to support the housing market can be considered as a new economic potential that will produce substantial economic support for Brasilia, toward the building of a new spatial economic pattern. New communities

FIGURE 2:  
PILOT PLAN: "UPPER" MIDDLE CLASS NEIGHBORHOODS PRICE STRUCTURE



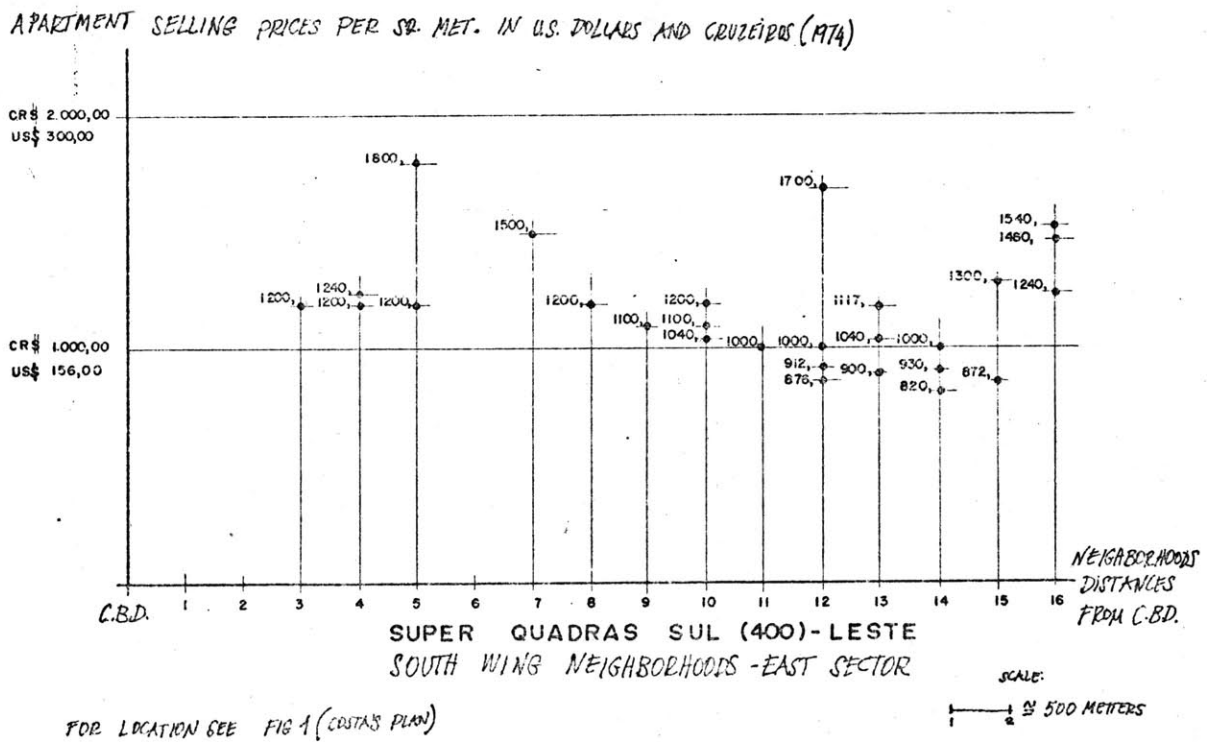
SOURCE: MY OWN SURVEY-1974

FIGURE 3:  
PILOT PLAN: "MIDDLE" CLASS NEIGHBORHOODS PRICE STRUCTURE



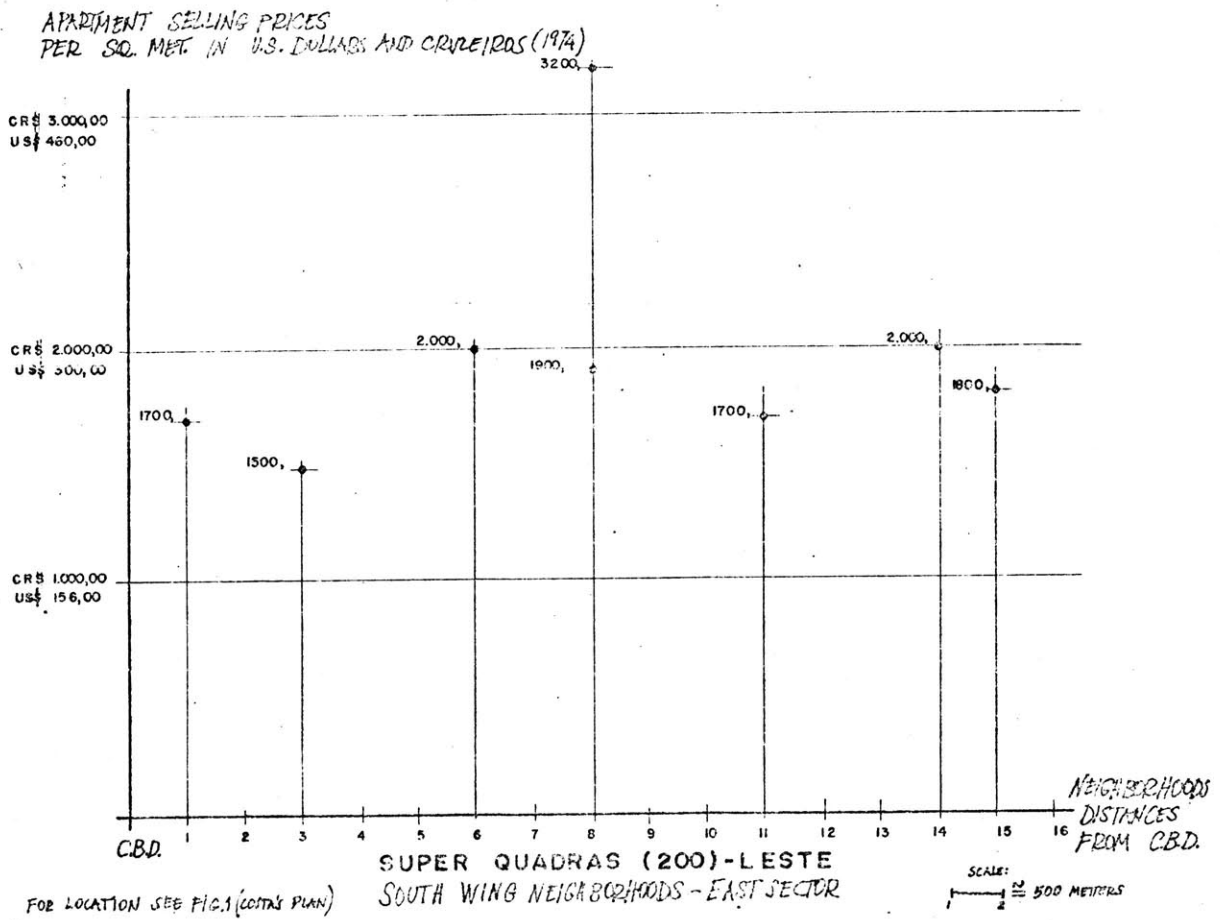
SOURCE: MY OWN SURVEY-1974

FIGURE 4:  
PILOT PLAN: "POPULAR" NEIGHBORHOODS PRICE STRUCTURE



SOURCE: MY OWN SURVEY - MT4

FIGURE 5:  
PILOT PLAN: "LOW" MIDDLE CLASS NEIGHBORHOODS PRICE STRUCTURE.



SOURCE: MY OWN SURVEY-1974



and neighborhoods can be built and each one makes possible the production of new goods and services enlarging at the same time the urban market for a whole range of new industrial products. Therefore, housing and new communities stands for Brasilia in the 1970's, as the building of the rodoviary infrastructure stands for Brasilia in the 1960's. Likewise, in Brazil, several other major industries (rubber, glass, iron works, etc.) were introduced as a direct consequence of the automobile industry, all these investments exceeding by far the direct investments in the automobile industry itself. As a result, housing was a direct historic consequence of these investment policies and represented a logical continuation of the "developmentist" policies started in the Kubitschek administration. Moreover as the housing subsidies and loans are entirely dependent on official policies, the public sector has all the instruments to guide urban development in the direction of their political aims. Therefore, these expenditures in housing are bound to mold new locational patterns in the metropolitan settlements. We will focus on the "housing question" not through a bureaucratic or "neoclassical" approach of a "free market" allocating housing according to comparative marginal costs and redistribution of income, but we will consider housing expenditures in this new set of urban concepts such as "urban hierarchy" and "urban stratification" to better understand the functioning of

the housing "markets." While for the neoclassical view housing allocational resources are consequences of market forces decisions, we suggest particularly in the example of Brasília that urban stratification and segregation can be seen as central issues related to the attempts by the government to discipline and coordinate the social distribution of populations within the metropolitan area, in order to maintain and increase the social upward trend and patterns of consumerism in the Pilot Plan area. Housing allowances, therefore, can be analyzed through such frameworks since 90% of the housing supply in the official markets is provided mostly through some form of government action or financial program.

The private sector produces only 10% of the overall supply. From the total of 35,255 dwellings supplied between 1966/1972, the official share was 91% (32,137) dwellings offered through several economic and financial public agencies. Private agencies only had financed 5.1% during the same period of time. Consequently, the principal responsibility for providing housing for the different social strata in Brasilia relies on the government's official political and economic decisions. How did these policies shape the different demands for housing in a new urban form? First of all, the distribution of the different eligibility criteria was based upon what we call professional middle class "rationalistic-humanitarian" prejudices. The basic assumption of this view was to

consider that the presence of shanty towns near the Master Plan was incompatible with the modernity and symbolism that Brasilia as a new capital would represent. The second assumption was the middle class rationalistic argument that better physical housing standards would be fundamental to eliminating all the "pathological" phenomena observed in the different shanty towns around the central city. Most of all the predominant view among middle class experts was that the presence of these shanty towns was incompatible with the symbolic and modern role of the new capital of the country. Costa's preventative physical measures were actually ideologically aimed against the growth of any squatment close enough to the Pilot Plan, a situation which would have eventually threatened the aesthetical purposes of the official city through a ring of "low-quality" housing patterns.<sup>(66)</sup> As a result, official urban and housing policies were centered in a triple political strategy using housing allowances as a tool to change locational and spatial urban patterns, as we will now try to describe.

### 3.3 The Radicalization of Urban Segregation and the Role of Housing Market Mechanisms

The official strategy centered in housing allowances were developed around the following policies:

#### 3.3.1 The institution of market mechanisms with government intervention.

3.3.2 The provision of financial government loans for upper and upper middle classes' housing construction in the Pilot Plan and in satellite cities, respectively.

3.3.3 The "design" and implementation of a strategy for the "erradication" of favelas located near the Pilot Plan.

3.3.1 Regarding the first item, the institution of market mechanisms was achieved through the correction for inflation in the payments for the house, land, and a series of requirements designed to insure that the recipients would be willing and able to keep up with them. These requirements would soon eliminate those either earning less than the amount necessary to participate in any program or unable to prove their ability to pay. These requirements were contained in the framework of a national housing plan financially supported by a national housing bank. The national housing plan affected Brasilia after the local government adopted the following policies aiming the creation of a local housing market:

1. The compulsory sale of the real estate belonging to the national government to the middle class bureaucracy, the mere accession of rights to a one bedroom apartment was worth U.S.\$5,000. even though the new resident would have to buy it over a fifteen year period. The low income residents, who did not have resources to meet the monthly payments, chose the considerable cash they got by selling or trading their rights and establishing themselves in the satellite towns.

2. The financing of housing programs through the federal savings bank of Brasilia, which would finance houses worth up to U.S.\$15,000. Since the buyers are eligible only for houses for which they can contribute up to 30 percent of the total cost with periodic correction for inflation, it is clear that this program was designed for the upper middle class.
3. The creation of the Company for Housing of Social Interest(CHIS) (67) which would deal with housing problems of those whose incomes were below U.S.\$100. This program, as the others, would have to pay for itself. Hence, the correction for inflation in the payments for the house and a series of requirements designed to insure that the recipients would be able to pay. These requirements included land tenure and "official standards" in the constructions, which eliminate those either earning less than the amount necessary to participate in any program or unable to prove their ability to pay. By early 1967, the agency had completed only 666 houses in Gama, 1630 in Taguatina (68). Many people overcharged by the payments prefer the free ownership of a shack in the squatment, which is capable of being expanded and at less expense to the long term obligation of paying 15 or 20 percent of their wages with the constant threat of loss of the house.

3.3.2 Regarding the second goal, the provision of financial government loans for upper and upper middle classes, Table XIV shows the supply of official housing by different geographical locations and by income levels in each of the satellite cities and in the Pilot Plan. The data shows the following patterns: (69)

- 51.9% of all the official loans and economic resources for the construction of new houses or apartments were concentrated in the area within the Pilot Plan which at that time concentrated 28.69% of the total metropolitan population. Only 7.7% of this population belongs to the low income group. The remaining 48.1% of the official resources were distributed among the several

TABLE XIV

RELATIONSHIP BETWEEN INCOME, LOCATIONAL DISTRIBUTION AND  
NEW OFFICIAL HOUSING SUPPLY IN THE METROPOLITAN AREA  
1966-1972

	Pilot Plan			Satellite Cities											Federal District	
	Income Levels	% Pop* Pilot Plan	% of** Dwel- lings	NB	New Dwel- lings	SOB.	New Dwel- lings	PBG	New Dwel- lings	TAG.	New Dwel- lings	GAMA	New Dwel- lings	INV.		New Dwel- lings
170	Low <3000/mo.	7.70	-----	21.88	-----	36.49	-----	48.66	-----	32.00	-----	56.18	-----	39.53	-----	34.63
	Inf. Med. 3000/6000	26.96	0.6	33.32	-----	39.64	-----	34.37	-----	36.50	-----	33.10	-----	28.79	-----	29.65
	Medium 6000/11000	32.00	7.6	31.25	-----	18.02	-----	13.84	-----	24.17	-----	8.68	-----	8.48	-----	20.25
	Sup Med 110/230	25.62	18.0	10.42	-----	5.98	-----	2.68	0.9	6.07	-----	7.71	-----	2.09	-----	10.01
	High >230	17.32	25.7	3.13	0.7	0.67	0.8	0.45	23.5	1.21	6.1	0.27	8.9	1.10	-----	5.46
	100.00			100.00		100.00		100.00		100.00		100.00		100.00		100.00
			51.9		0.7		0.8		24.4		6.1		8.9		-----	

\*Source: Codeplan, Family Survey, 1969

\*\*Source: Between 1966-1972, Codeplan, Sectional Studies, Housing, Vol. 2  
 1972, % of Housing Dwellings Financed in Each Satellite city and the Pilot Plan locality by income level.

Key: NB = Núcleo Bandeirante  
 SOB. = Sobradinho  
 PBG = Planaltina, Brasília, Guará.  
 TAG. = Taguatinga  
 GAMA = Gama  
 INV. = Invasões

satellite cities where 71.31% of the metropolitan population were concentrated.

- No resources were assigned to "favelas" or any kind of low income settlements. However, these settlements accounted for more than 80% of the metropolitan population (categories A, B, and C - Table XVI). A comparison between these data and the distribution of the metropolitan population by income groups and geographical locations shows that the official policy was to benefit the higher strata not only in the Pilot Plan but in every satellite city reinforcing, therefore, the suburbanization and segregation.

3.3.3 Regarding the third strategic goal, the design and implementation of a strategy for the "erradication of favelas," the new government policies began by an evaluation of the housing sector in order to detect the amount of "substandard" dwellings that needed to be eliminated.

With the data from the survey undertaken by Codeplan (1969),<sup>(70)</sup> it was possible for the government to estimate the total number of families in the Federal District by different housing typologies, in order to enforce "erradication" processes. "Principal" families are considered as a set of people living in the same dwelling and earning the same domestic budget. A "secondary" family was qualified as a set of people sharing the same building with other families. A permanent dwelling is a brick constructed building with "reasonable" durability within the master plan requirements. Provisional dwellings are qualified as "poorly constructed" buildings (Codeplan, 1969) and subhabitation was defined as one with at least three of the following seven features:

1. Rough construction in wood or other material of low resistance (wattle-and-daub, adobe, etc);
2. Precarious sanitary installation;
3. Roofing with improper material or tiles in a poor state of repair;
4. Earthen floor;
5. Absence of electric light;
6. Lack of piped water;
7. Lack of space; crowding and precarious hygiene.

In order to estimate the housing deficit, the survey only had considered the potential demand and excluded substitution demands since the housing stock was considered as relatively new (10 years). The summation of the potential demand and the demand due to demographic factors gives the actual (1969) number to the housing deficit: 78,849 dwellings. The number of dwellings officially built in the same period was only 13,770. As we can see, even the housing demand due to the new demographic demand could not be solved by any government action. From this deficit, and taking into consideration the income structure, more than a third of the total population could not have their habitational demand solved through any "formal" habitational market.

The estimate of over twenty-five thousand families in the conditions was subdivided as follows:

- A) Invasions (in Pilot Plan): 5,000 families;
- B) Satellite towns: 14,500 families;
- C) Rural zone: 3,500 families.



It is believed that 25 percent of these families have a monthly income of less than U.S.\$50. It was clear that the official housing plan could not possibly provide for all of the squatters and for the lower middle classes. Based on these surveys, the official agency<sup>(71)</sup> came to the conclusion that from 24,000 to 25,000 housing units would be needed to "eliminate" "subhabitations" from Brasilia, based upon the 1965 population census and assuming no new in-migration (However, between 1965 and 1970, we know that the total population growth was 189,188, an increase of 52 percent!) This amounts to more than a third of the total population (1965) living in "subhabitations"! The official policy was to remove these populations without any ability to pay from the areas near the Pilot Plan to pre-selected new sites in the satellite cities. The new lots would be paid in installments of larger payment schedules.

Therefore, the institutional land use and housing allowance policies (the first stated in the Master Plan and the second reinforced by the institutional markets) were the legal and technical coercive instruments in the preparation and application of a series of relocational measures against low and middle low income strata. Among these measures was the policy of "erradication" favelas by transferring shacks located in government land, while denying the favelados the usual rights or possession.<sup>(72)</sup> The Invasion Removal

Commission<sup>(73)</sup> created to deal with the legal and practical problems of the favelados, was assigned the job of setting legal criteria. For the commission "any and every" construction in an unforeseen location in the Federal District, without the authorization of the competent authorities, is considered an "Invasion." If official authorization was given, it would be considered as an "encampment," which should have an administrator charged with, among other things, not permitting squatting in the area. "There were cases in which constructions, having originated as campments, have become "invasions" due to the absence of an administrator, as in the case of the Invasions Sanitations and Do Re Mi."<sup>(74)</sup> As a result, to emphasize to the residents themselves the temporary nature of their land tenure, public services of almost every variety were denied to them, and as each family was moved, it was informed in no uncertain terms that it was not getting an official permanent lot. The Brasilia local government aided by sufficient personal for removals, employed rapid physical remedies in the small and totally controlled area under their jurisdiction, in order to prevent the opportunity for litigation and shift all new pressure for invasions in the central areas of the official plan to less well inspected favelas in the satellite cities (See Table XV). The government interpreted the favela legal legislation as preserving the aesthetical "status quo" and maintaining its tiny, centrally planned

TABLE XV

BRASILIA: FAMILIES REMOVED FROM "FAVELAS"  
TOWARD NEW OFFICAL SETTLEMENT SITES  
BETWEEN 1971 and MARCH 1972

Shanty Towns (Favelas)	Number of Removed Shacks	Number of Families Transferred	Total Population Removed	Removal Time Period	Daily*	Time
					Before Removal	After Removal
Iapi	9.931	10.696	53.639	3/27/-11/10/71	35	70 min
Tenorio	2.289	2.712	13.785	11/5/71-2/9/72	40	70 min
Esperanca	1.570	1.886	9.346	5/11/71-1/27/72	45	70 min
B Sayao	0.438	.460	2.586	2/7/-2/28/72	45	70 min
Querozene	0.462	.497	2.738	2/23-3/6/72	40	70 min
Totals	14.690	16.251	82.094	3/27/71-3/6/72	--	-----

Source: Codeplan, Sectional Studies, Housing, 1972.

\*Daily Travel Time to C.B.D. by Bus--Sources: My Own Survey

area "clean." Therefore, zoning regulations plus legal reinterpretation of the land tenure codes, linked with the absence of a local political participation increase the initial populist segregation of locational urban patterns and transform the metropolitan form in a highly segregated "urban archipelago." (75)

#### 3.4 The Satellitization Process

Actual urban policies can be defined as an institutional attempt by the local planning agency to limit the newly created market forces in order to stimulate growth by the many satellite settlements, while controlling the Pilot Plan internal growth through institutional instruments such as zoning ordinances, land use standards, taxation, etc. There is no actual attempt to reverse suburbanization trends and to accept a certain portion of low income people in the central city. The urban development therefore continues to follow a distinct pattern of suburbanization, satellitization and segregation. As land prices rise as a consequence of the increasing migratory movement, and the peripheral open private land was subdivided and urbanized, the central government had to absorb the increasing expenditures necessary to build new infrastructures such as roads, streets, public services, etc. As a result, the growth of the new metropolitan area has been accompanied by substantial rises in the public expenditures and low benefits per inhabitant. This process is reinforced by the

suburban migration of increasing number of middle and lower middle class families fearing the impact of higher taxes and increasing urban expenditures in the Pilot Plan areas. Figures 2 to 5 show the costs of residential apartment units in the four different types of neighborhoods provided by the "democratic" Pilot Plan economic levels.<sup>(77)</sup> This situation is consistent with Table XVI showing the concentration of high income families within the central city. The elitist trend is also consistent with the increasing percentage of high income families living inside the planned area, if compared with similar data from other Brazilian cities, or with historic Brasilia's data. As the migratory process is unlikely to be diverted, we conclude that urban growth and complete suburbanization are inevitable, unless new policies seeking to reintroduce diversity in the central city could be reinforced.

As a summary, the use of institutional programs such as housing financing, while answering some of the demands of the private sector building industry, particularly in the Pilot Plan area, was politically designed to regulate the overall metropolitan structure and to enforce the distribution of public goods through liberal markets mechanism within government discipline and supervision. In this process, cost minimization cannot be identified with government intentions, since the growth of the low density satellite cities, through housing incentives, is costly.

TABLE XVI  
BRASILIA: INCOME AND LOCATION

Income Levels	Pilot Plan %	Núcleo Bandeirante %	Sobradinho	Planaltina Brasília Guarã	Taguatinga	Gama	Invasões	Federal District
A	7.70	21.88	36.49	48.66	32.05	56.18	39.53	34.63
B	16.96	33.32	39.64	34.37	36.50	33.16	28.79	29.65
C	32.00	31.25	18.02	13.84	24.17	8.48	8.48	20.25
D	25.62	10.42	5.98	2.68	6.07	7.71	2.09	10.01
E	17.32	3.13	0.67	0.45	1.21	0.27	1.10	5.46
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Level A (low income): minus than US 30.00 (monthly)

Level B (inferior medium income): from US 30.00 to 60.00 (monthly)

Level C (medium income): from US 60.00 to 110.00 (monthly)

Level D (superior medium income): from US 110.00 to 230.00 (monthly)

Level E (high income): above US 230.00

Source: Codeplan, 1969.

Therefore, the main role of the housing financial system was to "stabilize" the total dependence of the satellite cities and increase the hierarchical control of the urban area by the Pilot Plan. In this process, housing allowances were used as organizational spatial patterns rather than by their socio-economic progressivity, since the result of this process was a widespread pulverization of the resources throughout a wide variety of satellite settlements, with the consequent duplication of infrastructure and loss of any scale economy.<sup>(78)</sup> However, if the intended target was to discipline and differentiate social strata over the urban space to prevent the "chaotic" experience of the traditional cities, the final results were successfully attained.

### 3.5 Spatial Segregation and the Labor Market

In order to analyze the most important aspects of the morphology of Brasilia's segregated metropolitan space, we will attempt now to understand the concentration of employment and underemployment among specific social groups. In doing so we reject the neoclassical models which state that a free and open labor market allocating labor according to comparative marginal costs and distributing population over the urban area according to the resulting income is the most important tool for understanding urban allocations. We believe that a new set of categories such as "urban hierarchy" and "urban segregation" have to be introduced to

better explain the spatial form of Brasilia, particularly under direct government intervention, as we have described in the former sections. I will suggest that the particular political and institutional framework through which the city was molded and the nature of the labor market must be seen as important social issues related to the struggle between urban settlers and government over the production and appropriation of social urban space. In other parts of this thesis, we have described the nature of the urban decision-making under "populist" government and under the new capitalist "nonpaternalistic" structures. Now we will advance some hypotheses on the social structure of the city which we believe are relevant in order to explain the spatial stratification Brasilia presents nowadays.

#### 3.5.1 The Homogeneity of the Local Job Market

The problem we will deal with is the homogeneity of the labor market in a new city with a basic services and civil construction jobs structure. We accept first, that as the country entered a more advanced capitalistic phase, differences among working class jobs tended to decline. In developing countries, this process is accelerated by the relative scarcity of skilled workers. Unlike developed countries, there is no need for labor divisions based on race or sex, since labor market homogeneity is supported by huge migrant unskilled workers which contribute to explaining



the low level of working class unity it engenders. On the other hand, the relative high presence of unskilled traditional industries, and the labor intensive techniques used in the construction industry further contributes to a progressive homogeneization of unskilled and low waged manpower. Therefore, divisions within the working class come to be based less on such descriptive traits as "nationality" or "religion" or "race" than on economic levels related to the nature and structure of the productive system. As a result, not only differentials income is leveled, but social patterns resulting from consumerism are more or less undifferentiated for the bulk of the working class. Since differential incomes are homogeneous, and spatial location is the manifest expression of these incomes, there is a strong homogenization of the spatial locational patterns, and therefore for the social and spatial relations underlying these patterns. Moreover, in Brasilia, the total absence of a strong industrial sector and the predominant presence of government activities tend to homogenize white collar wages in the same way.<sup>(79)</sup> Therefore, differences in income and wealth are reflected in the spatial structure in such a way that intra-class differences are not so strong as the gap between the middle class public employees as a whole and the totality of the working class. Moreover, this gap tends to increase due to the differences between controlled migration for the public employees and uncontrolled and intensive

migration for the working class sector. Table XVII shows the distribution of the metropolitan labor force. About 25% of the metropolitan labor force is located in industrial jobs, whereas 20% was in government service-related jobs. Tables XIV and XVI show the relative distribution of income for the Federal District. From this data and considering the high percentages of public employees who are low-skilled with low incomes, we can understand that the total low income-low skilled working classes amounts to more than 80% of the total population (considering income levels A, B, and C, categories - Table XIV); whereas middle class white collar employees amount to only 15% (levels D and E). Table XVIII for example shows the predominance of low-skilled jobs in the construction industry as the main source of income for household heads living in the Social Security Invasion. The largest single category is that of laborer, which otherwise accounts for over one third of the household heads. Moreover, the figure of 55.1% (1966) suggests that many of the people listed as "other or none" are in fact in various occupations connected with civil construction. As a result of these unskilled job characteristics in the construction industry, occupational multiplicity is not correlated with significant differential wages, since the supply of unskilled workers due to migration is seemingly much greater than the demand. Therefore, for the

TABLE XVII  
EMPLOYEES BY ACTIVITY AND METROPOLITAN LOCATION  
1970

Activities	Pilot Plan	Gama	Taguatinga	Brazlandia	Sobradinho	Planaltina	Total	Job Population Ratio**
Agriculture								
Cattle	1.679	.822	1.142	.648	.706	1.009	6.006	1.0
Industry	20.982	8.115	8.361	1.086	3.644	2.026	44.214	1.7
Commerce (Goods)	8.809	1.586	5.080	.188	.860	.321	16.844	2.0
Services	22.468	3.682	6.836	.396	1.858	.812	36.052	2.0
Transportation & Storage	4.189	1.021	2.839	.122	.487	.256	8.914	2.0
Social Activities	12.802	1.930	3.868	.215	1.620	.491	20.926	3.0
Public Management	24.540	1.885	3.444	.127	1.610	.422	32.028	3.0
Others	7.285	1.032	2.435	.079	.862	.254	11.947	3.0
Totals* Employment by City	102.744	20.73	34.005	2.861	11.447	5.591	177.931	2.5
% of Total Employment*	52%	11%	13%	1%	6%	3%	100%	

Basic Source: Demographic Census, Federal District 1970, Fibge

\*Totals and per city percentages added (rounded)

\*\*Lewis Index

TABLE XVIII

BRASILIA: PRESENT OCCUPATION OF HOUSEHOLD HEADS IN  
THE SOCIAL SECURITY INVASION

<u>Occupation</u>	<u>Percent</u>		
	1965	1966	1967
Carpenter	5.5	----	5.4
Laborer	18.4	30.6	27.9
Mason	5.8	----	6.8
Other Construction (Painters, Plumbers, etc)	3.9	*	*
Construction in General	*	24.5	*
<u>SUBTOTAL: Construction</u>	<u>33.6</u>	<u>55.1</u>	<u>40.1</u>
Commerce	5.9	10.2	8.3
Domestic and Laundry	7.1	20.4	8.2
Driver	4.5	5.1	9.0
Farmer	1.0	----	2.9
Odd Jobs (Subemployment)	14.3	----	3.4
Others or None	32.6	8.2	22.7
	100.0	100.0	100.0

Source: Social Service Foundation 1965, 1967 and  
David G. Epstein's Sampling.

skilled, stability of employment rather than wage differentials, is often considered as the most valuable option which further contributes to the job homogenization process.

Likewise, other sources of employment only reinforce these patterns. Local commerce provides only minor additional sources of income and large portions of the industrial sector only perform wholesale and final processing for the southeast industrialized nationalized pole (São Paulo, Rio de Janeiro), using unskilled manpower as a basic labor input. In addition, wholesale commerce operates strongly on the branch of building materials, also using unskilled workers for the storage or deliveries, at the construction sites. For women, the principal source of employment is domestic labor. The work is rarely specialized, and the wages are below the official minimum. The overall pattern of employment is shown in Table XVII.

An important element resulting from the process of labor homogenization is the consequent spatial concentration of the types of job structure analyzed. While in the developing countries, employment dispersal was aimed at reducing the employment opportunities through employer and locational restrictions and discriminations, particularly against minorities, in developing countries factors concurred relative to employment concentration and housing dispersion, which seemed to be the characteristic pattern. The urban strategy adopted by the most recent institutional policies,

particularly in the case of Brasilia, where the government has all the institutional tools to "outline" a new urban pattern, seems to collaborate this hypothesis. In the case of Brasilia, we argue that as a result of homogenization of unskilled jobs and wages, spatial distinction between the large majority of the working class population with a low internal degree of wage segmentation imposes serious problems for spatial planning, especially regarding the specially concentrated unexpected collective and contradictory social behaviors.

First, populist experiences had shown the limitation of "negative policies" intended to prevent the uncontrolled growth of low income settlements once they are "allowed to begin." The relative homogeneity of interests, jobs, wages, and social demands got transferred to a struggle by a common program of action, mainly focused on tenure and supported by a broad local coalition which included neighborhood organizations and local business' financial support. Second, the great concentration of unskilled jobs in the Pilot Plan tends to act as a "pull factor" for greater locational proximity acting as the most efficient means of "income appropriation." This tendency is strongly reinforced by the possibility of gaining access to scarce and well provided public services in the central and urban area. All these factors means that any official policy in effect, acquiescing in the continuance of the low income area near

the planned sites, would ensure growing united and uncontrolled homogeneous mass demand over the institutional welfare and association structures. As a result, official policies were always focused on preventing the spatial locational social mix by maintaining central employment while dispersing the working class to different communities throughout the metropolitan area. Different communities were stimulated and supported by proportional financial housing plans in new or existing peripheral cities. All these communities continued to rely largely upon central employment and resources, and the metropolitan area began to show a double pattern of segregation and subordination. Therefore, weak intraclass segregation due to wages and job types was transformed into strong spatial segregation. As a result, the danger of "common and homogeneous" social and economic demands were better controlled by the government urban segregatory policies.

PARADIGM IV  
GUIDELINES FOR NEW METROPOLITAN POLICIES

4.1 Employment Patterns and Urban Policies

The fact that in Brasilia the location of public employment is directly subject to governmental control and that government employment is the basic economic factor of the urban economy, has the result that official policies rather than only common price-market forces can mold the urban space of the whole metropolitan area. The first consequence of this characteristic is that the urban economy depends heavily in one side on the service production and in the other side on the industrial production of buildings and urban equipment. In this section, we will try to describe how the basic employment patterns affected the actual and how they will affect the future dynamics of suburbanization and segregation in order to outline some future urban policies.

Our first assumption is that unlike in some developed countries, suburbanization does not entail a reduction in the Pilot Plan central employment. Suburbanization is mainly residential and the satellite cities are actually dormitory cities for the vast majority of low and lower middle classes. In order to give a dimension to these processes, we have calculated an index to measure the relationship between the metropolitan population, the jobs located in the metropolitan area, the population of the Pilot Plan, and the jobs located in the Pilot Plan. If the jobs-to-population ratio is the same in the central city as in its satellite cities, the index will display a value unity.<sup>(87)</sup>



Values greater than unity indicate that metropolitan jobs are higher concentrated in the central city than in the whole metropolitan area. Values of less than unity indicate the converse. In Table XVII we present these indexes for Brasilia. It is clear that all indices show a strong concentration of jobs in the Pilot Plan. Therefore, the population is growing in all the satellite cities faster than our employment. Moreover, this gap tends to grow since the fastest growing unskilled employment is in services and civil construction and these activities are heavily concentrated in the central area. Therefore, the suburbanization of the labor force reduces the potential competition for vacancies physically located in the Pilot Plan. While in "old cities" a large portion of the middle and lower strata compete for jobs located in the central area by living there in Brasilia, the absence of unskilled workers living in the pilot plan results in easier access to services employment for the local white collar residents. Therefore, the growth of central jobs as the unique source of employment and the strategic position of the white collar central neighborhoods, gives to the middle and upper middle classes an increasing social and economic advantage. These jobs dynamics show that there are more centralized jobs than centrally located workers with the extra jobs going to commuters from the satellite cities. For the total Pilot Plan population, 205,033 inhabitants, the number of local jobs is 57,666 whereas for the remaining metropolitan area, with a population of 500,177, the extra jobs inside the Pilot Plan are 45,078. Table XIX displays these data. We have in the case of

TABLE XIX

## BRASILIA: HOUSEHOLDS WORKING PLACE--SPATIAL PATTERNS (FEDERAL DISTRICT)

House- hold Loca- tions	Total Local Activi- ties House- holds (A)=(D) + (E)	Total Local Employ- ment (B)	Employ- ment/ 100 Active Habi- tants (C)	Total Local House- holds Working in the Locale (D)	Total Working Outside Locale (E)	Total Persons Working on Pilot Plan (F)	Pilot Plan "Pull" (F) (E)	Other Locali- ties "Pull"	Local Work- Force Absorp- tion
TAG.	32.328	16.931	52.7%	14.438	17.890	14.927	83.4%	2.6%	44.6%
GAMA	16.599	5.165	30.9%	4.715	11.884	9.939	83.6%	7.7%	28.4%
SOB.	9.376	4.389	47.1%	3.770	5.606	5.010	29.3%	3.1%	40.2%
PLA.	4.994	2.587	50.1%	2.427	2.567	1.674	65.2%	14.1%	48.5%
NB	3.923	5.173	132.6%	1.598	2.325	1.654	71.1%	7.2%	40.7%
BRA.	2.180	.725	34.5%*	.608	1.552	.925	59.6%	28.0%	28.1%
GRA. INV. }	22.028	4.648	21.1%	4.507	17.521	12.781	72.9%	15.6%	20.4%
LOC. MON. }	1.682	.655	40.9%	.320	1.362	1.122	82.3%	11.7%	19.0%
TOTAL					60.707	48.032			

\* Immigration Employment

Source: I.C. Barboza and A. Paviani, Commuting in  
Brazilian Federal District, 1972.

Key: TAG. = Taguatinga  
 GAMA = Gama  
 SOB. = Sobradinho  
 PLA. = Planaltina  
 NB = Nucleo Bandeirante  
 BRA. = Brazilandia  
 GRA. INV. = Grandes Invasões  
 (Squatter Settlements)  
 LOC. MON. = Localidades, Mansões  
 (Provisional Localities)

Brasilia, the extreme case of disequilibrium between the jobs dynamics in the central vis-a-vis the metropolitan area. The best job opportunities in the central city are correlated with easy accessibility for the white collar workers. Jobs are coming to be highly centralized for all strata, while locational residential patterns only ensure easy accessibility for the upper strata. Either highly skilled or low skilled jobs and governmental jobs are created in the central city. Jobs in the satellite cities are only correlated with local services and destined to attend to the local demand for basic activities such as foodstuffs or personal services. In Table XX we present some data in order to understand the nature of these local jobs. Local, suburban job absorption is given as a percentage for three different activities such as housing appliances, health care and basic foodstuffs. Only this last category presents a significant local jobs absorption. The poorer the satellite city, the less the absorption of local activities and the more heavily the local work force depends on the central city's employment opportunities. In Table XIX we have mapped these relatives, "occupational pull" we have characterized as the percentage between the total number of jobs created in the central area and the total number of people working outside their satellite city. This data is disaggregated by different satellite cities. The pilot plan pull is intense for all satellite cities. Even for Brazlandia, distant from the central area some 57 km and at 100 minutes travel time, the pull is 59.6%. Local absorption is more relevant only for cities such as Planaltina, whose historical existence is older than the

TABLE XX

BRASILIA: LOCAL ACTIVITIES ABSORPTION (IN PERCENTAGES)

Localities	Absorption for Housing Appliances	Absorption for Health Care (Physician)	Absorption for Basic Foodstuffs
Taguatinga	65.1%	73.1%	91.1%
Gama	31.8%	86.5%	91.6%
Sobradinho	33.0%	60.9%	77.7%
Planaltina	25.0%	55.6%	88.9%
N. Bandeirante	20.4%	17.2%	92.3%
Brazlandia	0.0%	58.6%	85.7%

Source: Survey on the Mobility of D.F. Population  
 Brasilia University--Department of Geosciences

Brazilia's settlement. Local work force absorption is positively correlated with distance from the central city. This is due to the "capture" of activities excluded from the pilot plan area by their intrinsic "informality", such as public "street markets" and all the informal sector's activities. Activities such as grocery stores physically attached to the residence of the owner, the commerce of basic foodstuffs for the local population at lower prices than the Pilot Plan, attract to satellite cities not only the upper and middle classes from other areas. Other activities such as informal repair shops, automobile repairs, and some branches of building materials increases local employment in some satellite cities. Due to the local prevailing low prices and proximity from the main center, it's also common for people from the other cities to shop during the weekend in nearby satellite cities. The most important example in which proximity of the central area allows the local economy to grow and to create jobs is the satellite city of Nucleo Bandeirante, which is the only city besides the central area, with excess jobs over local workforce population. The number of local jobs exceeds the local workforce population due to the proximity of the central area (Pilot Plan). In Figures 6 and 7, we have drawn the metropolitan hourly population profiles for each different satellite city.<sup>(82)</sup> Only Necleo Bandeirante shows a positive profile during the daily working hours. For the remaining satellite cities, the characteristic peak hours show the percentage of the local population traveling outside for other employment areas. Returning to Table XIX, we can see the

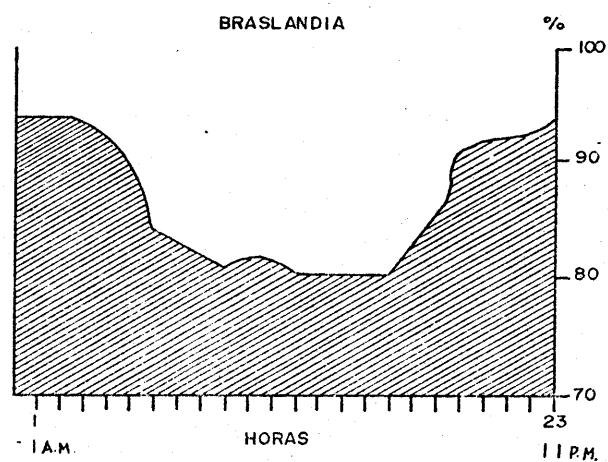
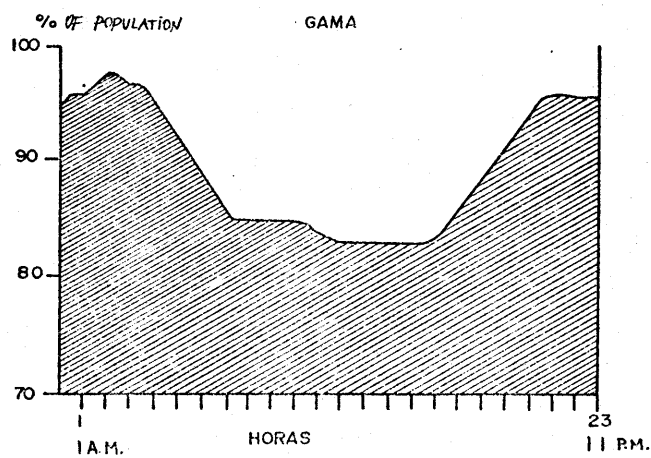
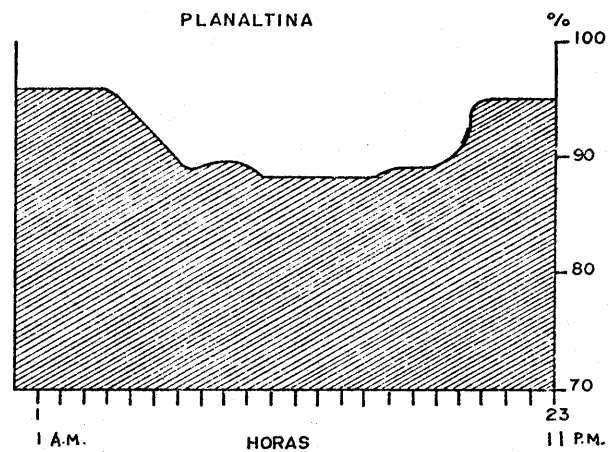
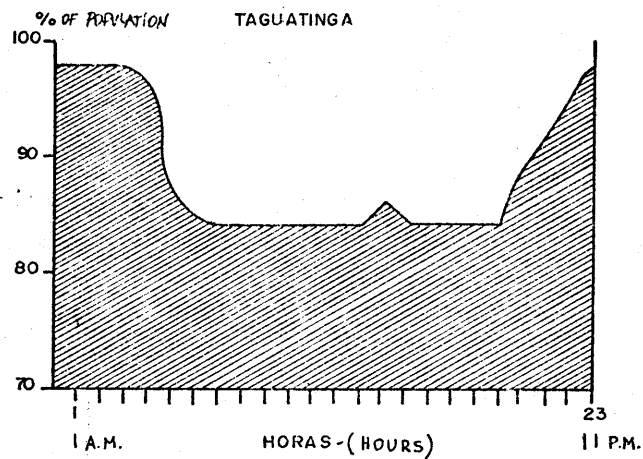


FIG. 6 : METROPOLITAN HOURLY POPULATION PROFILES (IN EACH SATELITE CITY) -A

SOURCE: SOUTH OF GOIAS AND EAST OF  
MINAS ATLAS, BRASILIA UNIV.  
DEPT. OF GEOGRAPHY. (UNIVERSITY)

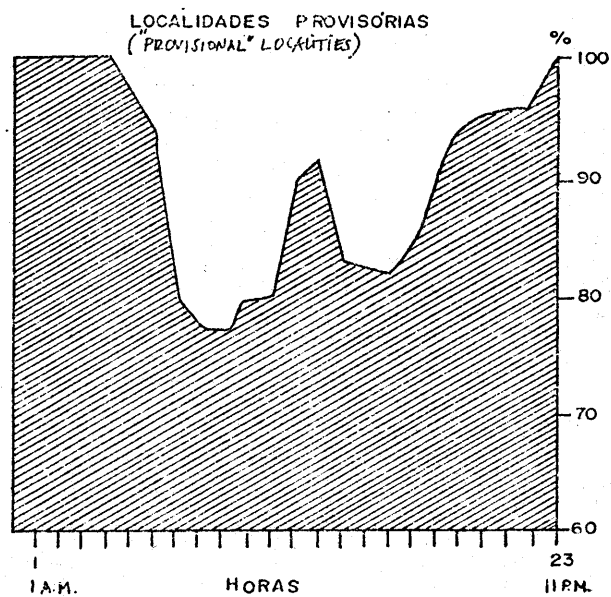
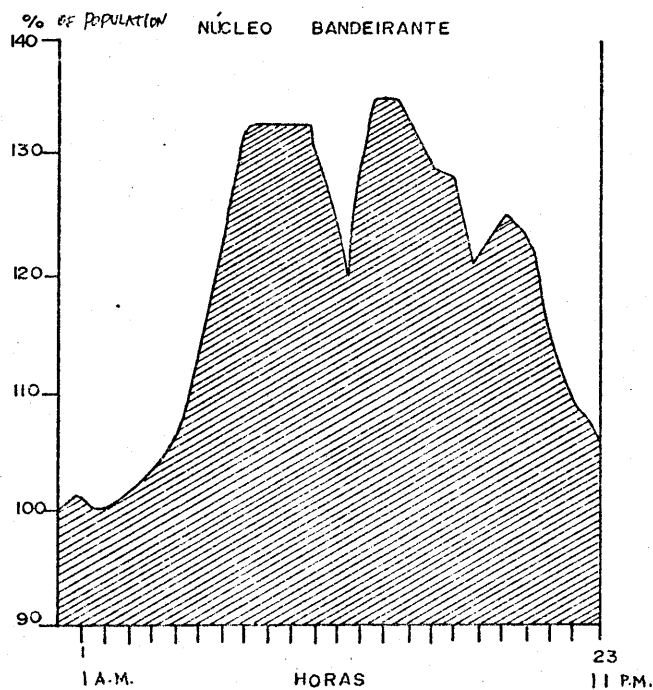
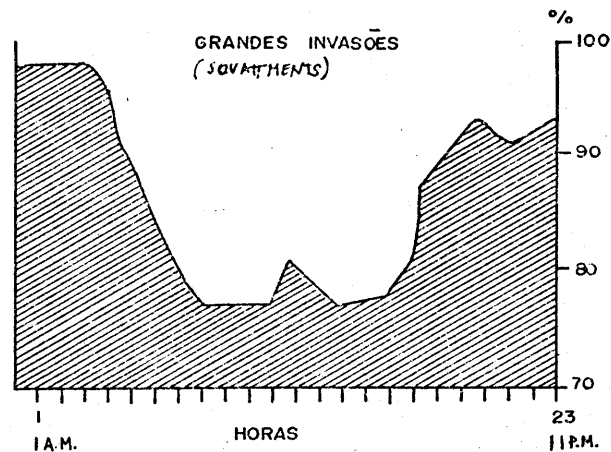
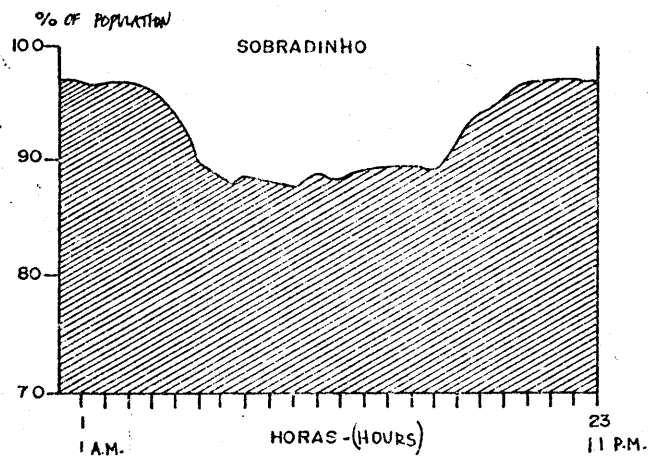


FIG.7: METROPOLITAN HOURLY POPULATION PROFILES (IN EACH SATELLITE CITY) -B

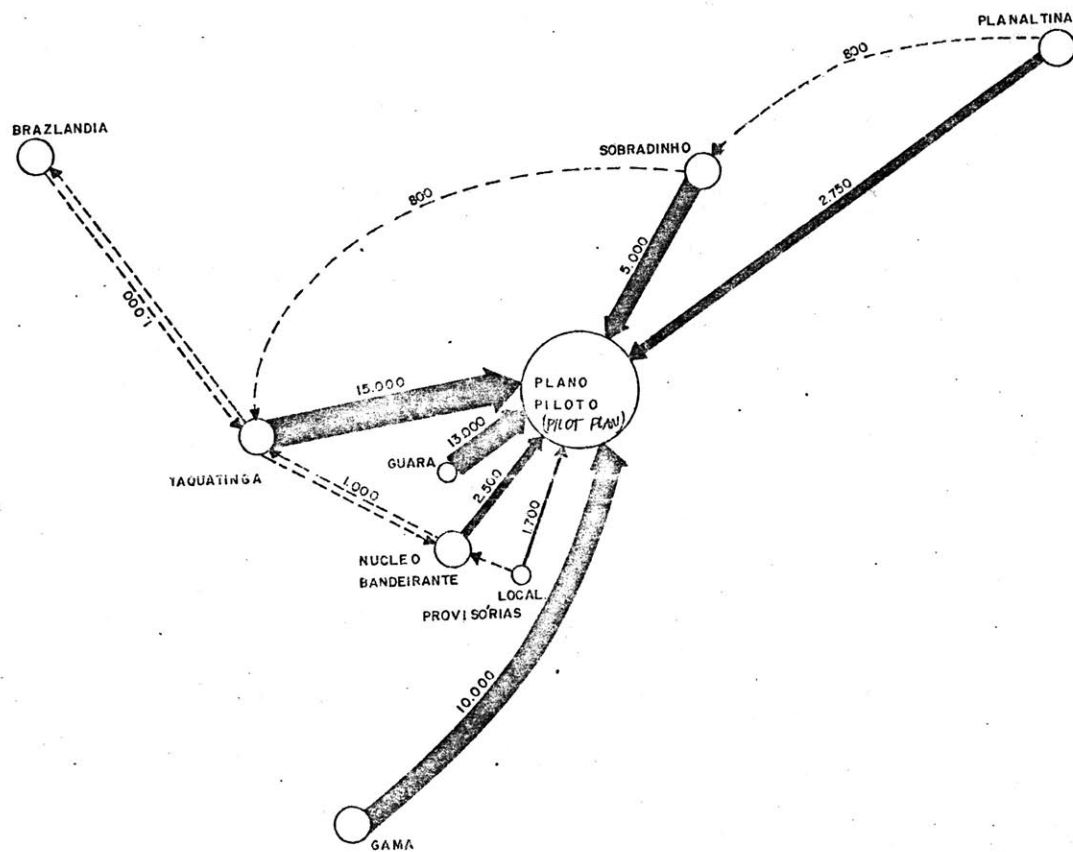
weakness of the other localities' pull if compared with the Pilot Plan. Therefore, the bulk of commuting is correlated with Pilot Plan employment opportunities. In Figure 8, we show the intensity and the direction of these different daily commuting flows toward central job opportunities.<sup>(83)</sup>

#### 4.2 The Job Distribution in the Metropolitan Area

Table XIX shows the nature and intensity of the job concentration. While the satellite cities share 70% of the metropolitan population, they account for only 42% of the employment opportunities. From a total 177,931 employees in the metropolitan area, 52% (102,744) of the workforce works in the Pilot Plan. The Pilot Plan accounts for almost 50% of the total industrial employment, more than 50% of the commercial jobs, and respectively 50% of the transportation and storage, 60% of the social activities, and 80% of the public employment. From the total population working outside their residential localities, 79.1% of the workers have their jobs located in the Pilot Plan. If we consider now the urban employment as the percentage of employment located in dense urban central areas, we will have the following comparative data: in the city of Paris, the central area (arrondissements 1,2,3 and 4) accounts for 559 ha. An equivalent central area of Rio de Janeiro (Zones 1 and 2 of the new subway system) has 439 ha. However, while in the Paris area jobs concentration is 7.6% of the total metropolitan region, in Rio this figure is 23%. While Paris region presents a 540 employment per ha, and Rio a 961,<sup>(84)</sup> Brasilia's Pilot Plan concentrates 52% of the total employment in an area of only 20 ha. However, while concentrating on more than half the metropolitan



FIG. 8 : INTENSITY AND DIRECTION - DAILY COMMUTING IN BRASILIA'S METROPOLITAN AREA



FONTE: ATLAS DO BRASIL CENTRAL  
DEPARTAMENTO DE GEOCIENCIA - UNIV. BRASILIA  
(EM ELABORAÇÃO)

SOURCE: CENTRAL BRAZIL'S ATLAS  
BRASILIA UNIVERSITY- GEOGRAPHY DEPT (UNPUBLISHED)

employment, the internal job density of the Pilot Plan is very weak, if we consider the Pilot Plan population divided by the number of local jobs. This results from the nature of the construction employment spatially spread throughout the whole pilot plan area by different neighborhoods and in geographically homogeneous zoning system for activities adopted in the master plan. As a result, Pilot Plan's internal accessibility of employment allows for easy access for the upper and middle class at any point of the Pilot Plan job market, while metropolitan employment is highly centralized and heavily dependent on inter-urban public transportation for the working class.

These social appropriation of commuting time by the upper strata results in increasing homogenization of high land and real estate values in the Pilot Plan. These higher prices indicate the social advantages of living in the Pilot Plan where commuting time by private automobile toward any point of the Pilot Plan rarely exceeds ten minutes. Therefore upper and middle upper class public employees can afford extra time at night to attend special college courses in order to earn a degree and enhance their beauracratc careers.

#### 4.3 The Future Distribution of Jobs

According to official forecast, Brasilia will suffer significant economic and functional job changes in the next ten years.<sup>(85)</sup> The main problem can be located in the structural change in civil construction employment patterns, actually employing 40,000 workers, or 20% of the active working population. Therefore some 200,000 inhabitants rely directly or indirectly on this sector. Several forecasts

show the future decreasing role of the civil construction sector, since the task of building the main urban structures is ending. Some data forecast for this sector an employment level of 5.4% (21,000 workers) in 1983, assuming the same actual technology and the sector's productivity. These numbers correspond roughly to the same level observed in other cities like Rio de Janeiro and Sao Paulo. TableXXI shows the estimates for the absorption of jobs through the civil construction sector as a function of the quantity of residential and non residential space-floor construction projected. Now if we compare this data against the general occupational job structure in order to evaluate the impact of these changes on the metropolitan job structure, we have the following data:

1. Services; 24% of the total employment and defined as: Foodstuffs, personal hygiene, repairs and maintenance of vehicles and machines, leisure, radio, newspapers and TV, waged domestic services, building maintenance , and apparel and clothing maintenance.
2. Public Administration; 19% of the total employment and defined as: Federal and local administration, legislative branch, and military and security forces.
3. Civil Construction; 17% of the total employment.
4. Social Services; 11% of the total employment and defined as: Public and private education, medical care, maintenance of public gardens and landscape, garbage collection, social welfare, cultural institutions, religious activities, representative unions, and class associations.
5. Commercial Goods; 10% of the total employment.
6. Transportation and storage; 5% of the total employment
7. Industries; 5% of the total employment.

In Table XXII we show the evolution of these sectors since

TABLE XXI  
BRASILIA: CIVIL CONSTRUCTION SECTOR:  
MANPOWER DEMAND FORECAST  
1974-1983

<u>Year</u>	<u>Residential Floor Space Demand (in 1.000 m<sup>2</sup>)</u>	<u>Non-Residential Floor Space Demand (in m<sup>2</sup>)</u>	<u>Total (in m<sup>2</sup>)</u>	<u>Manpower Demand</u>
1974	864	1.296	2.160	40.632
1975	864	12.96	2.160	40.632
1976	840	1.260	2.100	40.160
1977	800	1.200	2.000	38.246
1978	780	1.170	1.950	37.290
1979	720	1.080	1.800	34.421
1980	680	1.020	1.700	32.509
1981	620	.930	1.550	29.641
1982	540	.810	1.350	25.816
1983	440	.660	1.100	21.037

Source: Codeplan 1974.

TABLE XXII  
BRASILIA: OCCUPATIONAL STRUCTURE OBSERVED AND PROJECTED  
1972-1983\*

Sectors	MANPOWER DEMAND					
	1972		1983		Change	
	# of workers	%	# of workers	%	# of workers	%
GROUP 1	38.709	16.45	21.037	5.40	-17.672	-11.05
Civil Construction	38.709	16.45	21.037	5.40	-17.672	-11.05
GROUP 2	142.089	60.37	278.425	71.42	136.336	+11.05
Agriculture	6.726	2.86	11.804	3.03	5.078	+ 0.17
Industry	10.870	4.62	23.391	6.00	12.521	+ 1.38
Commerce of Goods	24.112	10.25	47.757	12.25	23.645	+ 2.00
Services	56.495	23.99	105.260	27.00	48.765	+ 3.01
Public Administration	43.886	18.65	90.213	23.14	46.327	+ 4.49
GROUP 3	54.552	23.18	90.368	23.18	35.816	-----
Mineral Production	.188	0.08	.312	0.08	.124	-----
Public Utilities	2.357	1.00	3.898	1.00	1.541	-----
Transp. Storage	11.311	4.81	18.752	4.81	7.441	-----
Liberal Professionals	2.482	1.21	4.717	1.21	1.875	-----
Social Services	26.172	11.12	43.352	11.12	17.180	-----
Others	11.682	4.95	19.337	4.96	7.655	-----
TOTAL	235.350	100.00	389.830	100.00	154.480	-----

\* Codeplan Estimates

Source: Codeplan

1972, and the projections for the next ten years. Comparing the past, present and the projected structural employment patterns, we can draw the following important conclusions:

- The agricultural activities will suffer a non significant increment. (0.17%)

- The industrial sector, excluding civil construction, will raise some 2%, particularly by the development of industries such as food industries (final processing), printing sector, apparel industry, and furniture industry. All these are light industries working for the local market and receiving raw material shipments from other highly industrialized regions of the country.

- The commerce of goods is expected to increase a fair 2% during the period considered

- The Public Administration sector is expected to grow more than 4%

- The Civil Construction sector is expected to decrease their relative participation to 5% from 16% or almost two thirds of its relative share in the local economy.

- Therefore the set of activities labeled as Services concentrates the main potential of economic growth in the urban economy. The category includes services such as we have described and the expected growth is in the neighborhood of 3%.

Activities listed in Group Two, (Table XXII) are expected to increase their share in the economy while activities listed in Group Three, will maintain their actual share and the civil construc-

tion sector will steadily decrease their role in absorbing human resources. As a result the future economic structure will depend basically on a sort of terciary based economy.

The implications of these projections shows clearly that the overall tendency for job concentration in the Pilot Plan is irreversible and intense for the near future, since significant new job increases are expected to occur exactly in those categories which show intense locational preference for centralization in the Pilot Plan. This is true for the apparel industry, printing, transport and utilities, wholesale and retail trade, finance insurance and real estate, personal business and government. For these activities, Lewis<sup>(86)</sup> has found for developed countries ratios well above the unity and a significant pattern of growth between 1953 and 1965. Our indices for Brasilia show numbers well above two for all these activities. It is clear that the overall tendency for job concentration in the Pilot Plan area will be reinforced in Brasilia, because of the economic nature of the newly projected activities which implies a greater centralization of the future Metropolitan jobs. Moreover, the nature of these service-related jobs is such that the demand will be significantly greater for skilled than for unskilled jobs. This growth of excess supply of central city jobs for all the occupations except civil construction, can only be slightly opposed by some new jobs in retail sales and services, as their activities closely follow the population movements in the satellite cities. However, the intensity of growth for these jobs cannot offset the overall

tendency for concentrated intense job growing in the central area.

#### 4.4 New Alternative Urban Policies

Considering these employment projections and the new economic trends for the metropolitan area a synthesis of new planning alternatives and guidelines for urban and metropolitan policies can be summarized as follows:

- A. Maintenance of the actual policies encouraging segregation of activities and continuous division of the metropolitan area between central employment and suburbanization of residential areas, mainly working class and lower middle strata. In this perspective the redistribution of new activities will reinforce central employment encouraging at the same time sub-divisions of the housing sector through the creation of new satellite groups of cities, either for the upper strata or for the working class.
- B. Absorption of the new employment in the central city by creating additional cheap supplies of space for these new activities; but, at the same time , by accepting continuously programmed residential locations in the Pilot Plan related with job distribution, therefore decreasing the relative intensity of the satellite growth, in the direction of a "new metropolitanism."

We will comment first on the policies dealing with the first strategy and after that we will develop arguments regarding the second alternative, in the direction of a "new metropolitanism".

As for the first strategy, several times in this thesis we have suggested that the forced residential decentralization of the unskilled workforce in the satellite cities vis-a-vis the growing central employment pattern is an abnormal



manifestation of urban growth with several intrinsically socio-economic pathological implications.

Moreover we have argued that the urban pattern, consisting of dispersing concentration of poverty throughout satellite cities which are increasingly less able to support themselves or to invest in their own local economy because they depend upon the central area for employment, has been described as a partial and discretionary metropolitan policy.

Meanwhile, all of the basic official proposals for the "development" of the central city in the next ten years concerns proposals for increasing decentralization and new expansions. These proposals assume a "land shortage" in the central city, and that the satellite cities must be again "decentralized" because they have reached "target" populations.<sup>(47)</sup> For the development of the central city, the strategies in study propose a new set of neighborhood unities for white collar workers, distanced some 10 km from the Pilot Plan area in a new site between the Pilot Plan and the satellite city of Sobradinho. For the working class, there are six new urban areas considered under a feasibility study! All these areas are further distant from the actual satellite cities.<sup>(87)</sup> Therefore, these proposals insist on and increases the segmented process of urban growth we have criticized.

The basic official assumption regarding the central

city development is the "shortage of land" for feasible development. However, while new areas are studied and new resources have to be allocated for their urbanization, only 60% of the Pilot Plan has already been built. The amount of developed land suitable for construction inside the official plan is today ordered to allow the construction of 24,000 new residential units, or more, if that is necessary for a population of 100,000 inhabitants. However, some of these lots are either in the hands of private developers or in the possession of para-governmental institutions, such as the Brasilia University. Only these governmental institutions have reserved urban land which is enough for the necessities of a new population of 33,000 inhabitants. Therefore, Brasilia follows the traditional pattern of external expansion, while leaving vacant land in an internal estimate rate of 40 to 50% of the total developed urban space. While in developing countries, the per capita volume of vacant land decreases at an increasing rate with the increase in population, the absence of institutional taxation on this land in underdeveloped countries increases the anti-social uses of the vacant land. For example, in the city of Belo Horizonte, for a built area of 6,700 ha, the total number of approved new lots was in the neighborhood of 5.700 ha. Vacant areas for one neighborhood of the city of Rio de Janeiro were found to be 40.67%<sup>(88)</sup> Regarding the

adjacent area of the Pilot Plan, there are enough vacant areas for building in any future development. However, these areas are still considered officially unusable for future development since the city is considered as protected by the "green belt" against future "land speculation". Only this argument constitutes the ethical base for preventing any future development. If horizontal development is prevented by ethical and aesthetical considerations, vertical development is more underutilized. The principle of "building visual hierarchies", states that the height of the different buildings has to be related to the height of the official and significant official buildings. Any imaginative plan to introduce changes in the six story flat residential buildings is prevented through a rigid zoning system. The "rational" character of the zoning and building codes was intended to maintain the basic layout of the city. Requests for variations are requested and denied, even in the case of minor variations. There has not been a review or update of the master plan until now, when the author Costa retired. Any attempt to change the basic pattern was considered as a direct menace to the symbolism and formal aesthetic of the city. The lowest density residential zones in the Pilot Plan continue to correspond to the row houses and walk up apartments economically accessible only to the middle class. The highest density residential zones corres-

pond to six story buildings with a density of 300 inhabitants per hectare. These two areas alone account for the total availability of residential space inside the Pilot Plan. Other areas surrounding the lake, supply the demand for single family houses for the upper middle class. These areas have experienced a contradictory development; while more than double the number of actual urban units can be built in these areas, high building standards (unifamiliar suburban American type houses) have limited the building of low or moderately low income dwellings, thus maintaining the housing supply reserved only for the first "suburban decentralization" of the upper strata. In the code ordinances, there is no provision for the developer's initiative to build a more complex set of buildings for mixed units and higher densities, as for example cluster of units of multi-family housing. The zoning system with its main focus on uniformity and aesthetical homogeneity, didn't take into account modern instruments, as the beneficial social and economic impacts on the school or business budgets, for instance, by the way of development of inter-mixed neighborhoods. Under the provisions of the code, no exception can be made on order to allow the architects and the private sector to take economic advantage of projects with scale economy "built in". The code called for uniform either six or for floor buildings, even today,

when advanced construction technique can provide for new intensive and economical use of space. Mixed uses of projects including apartments, offices, and combined shops are prevented by the rigid zoning system. However, we argue that all the areas under the right of way of the government owned network of large avenues, can be developed at free land costs. Following these tendencies, there are some projects developed by the students of the School of Architecture using, for example, the elevated structures crossing over these road spaces.<sup>(89)</sup> These elevated facilities would effectively double the supply of buildable space in the central area, not only for housing development, but also for local light industry and service zones. The government could specifically authorize the lease of these areas as "air-rights" and provide for federal grants for the development of socially necessary facilities. Redevelopment is also feasible by below the ground rights, for the construction of underground facilities in "aesthetically sensitive" areas. As all of this land is under government ownership, the administration has more than enough institutional instruments for controlling land speculation or at least inducing socially controlled growth in the Pilot Plan. These new and economically creative forms of molding social activity could provide the existing central system with the flexibility of replacing rigid spatial planning necessary

for those new activities. Therefore, one of the principal urban problems, adaptability, could be introduced. These innovations are the main issue to deal with since as we will show above, the metropolitan region is about to change to new significant central economic activities. This development could be intended to retain new residential as well as manufacture activities - within the central city in a move intended to reduce the rate of growth of the satellite cities by inducing diversity and variety in the central area. The unexpected availability of urban space such as we have pointed out, could discover additional quantities of space for renewal of uses, particularly by downgrading conversion on those areas displaced by new and better economic uses. The beginnings of a differential housing submarket inside the central city, would be socially satisfactory, if these areas could be chosen and transformed by changing their elitist building codes. Fixed zone codes have made it difficult for Brasilia to experiment with middle low income housing, even in a limited way. Insisting on ideally high physical standards and rigid zoning codes only prevent the development of new economic activities in the central areas. Forbidding mixed commercial and residential uses, the codes had only spatially displaced feasible economic possibilities from the central city for unplanned satellite areas.

Our conclusion is that, facing these facts, any new more "balanced" growth has to deal with the question posed by the second argument:

The reconciliation of two seemingly contradictory aspects of the Brasilia growth - the contradiction between the center and the periphery. If the process now shows an inherent irreversibility, this does not follow that the degree of divergence cannot be reduced through a comprehensive policy aiming at reducing the central city periphery's contradictions. The main issue for the formulation of any democratic metropolitan policy, must consider first that the qualitative growth induced in the central area and molded through official policies designed to cope with different political strategic alternatives will induce consequent impacts on the metropolitan area. Since public investment and the public control of the Pilot Plan area is the main factor in molding new metropolitan urban patterns, we will argue that the central government has the institutional power to channel new forms for the organization for the Pilot Plan, and as a dialectical consequence for the whole metropolitan area. Economic and institutional resources must be used by the government in the direction of a "new metropolitanism". Since until now effective governmental control of the metropolitan region was increasingly concerned only with the "distribution"

of some "Pilot Plan problems" throughout the metropolitan area, official policy makers have forgotten that interdependence of economic activities across jurisdictional lines, always induce negative externalities on the whole system. Moreover, when these districts are so spatially segregated that the creation of a given local activity hardly can benefit neighboring communities. Therefore, where such external diseconomies are present, public goods and services will be underproduced. As a result, in order to avoid negative externalities in the central city, the net result of the intense segregational process was the total loss of the benefits generated through positive spillover effects in all the metropolitan area. The final burden always got transferred to the central government in order to provide for services necessary in each and all the metropolitan communities.<sup>(90)</sup> Moreover, the weak economic base of the low density satellite communities, prevented more efficient resource allocation from answering the local demand for basic public services and goods. The desire to create economies of scale is prevented not only by the strong sub-division of the satellite cities, but by the impossibility of specializing each one of these unities for the production of different goods and to begin an inter urban exchange process in order to increase the internal economic viability, since each of these satellite unities



continues to perform colateral functions of dormitory cities vis-a-vis the central area employment monopoly. While the estimation of the public infrastructure costs is a complex problem, some estimations of the scale of urban production can be made in order to compare the inherent economic difficulties of the Brasilia's metropolitan area. In Table XXIII we have described the historical evolution of the population densities in the metropolitan area of Brasilia. Using the urbanization costs proposed by Urdaneta<sup>(91)</sup> for Venezuela we can see that all the satellite cities show a pattern for urban development in high costs per habitant. Only Nucleo Banderante has a relatively economical population density, and therefore better urbanization economies. We have shown before how this city is a unique example of job availability for the local residents. Therefore, we will discuss some guidelines to reinforce the economic feasibility of the metropolitan area through alternative policies aiming to restructure the metropolitan population in such a way as to affect positively the Pilot Plan area as well as the satellite cities in a context of a more balanced pattern of growth.

#### 4.5 The Economic Feasibility for a New Metropolitanism

In the following section, we will try to indicate the most important set of factors in the constitution of the metropolitan area of Brasilia in order to present some

TABLE XXIII  
BRASILIA: POPULATION DENSITIES AND URBANIZATION COSTS

Localities	1970-HAB	HAB/km <sup>2</sup>	HAB/Ha	1973-HAB	HAB/km <sup>2</sup>	HAB/HA	Urbaniza- tion Costs in US \$ per HAB
Pilot Plan	236.477	1181.20	11.81	205.033	1024.14	10.24	≥ 500.00
Guara	24.392	2974.63	29.74	33.896	4133.56	41.33	≥ 350.00
NB	11.133	7422.00	74.22	13.141	8760.66	87.60	≥ 250.00
Game	75.947	151.98	15.19	101.839	203.68	2.03	≥ 900.00
TAG.	109.584	250.36	25.03	288.611	659.38	6.59	≥ 700.00
BRA.	11.521	27.14	2.71	15.818	37.26	0.37	≥ 1000.00
SOB.	42.782	77.50	7.75	57.171	103.57	1.03	≥ 950.00
PLA.	21.932	22.43	2.24	31.561	32.28	0.32	≥ 1000.00
FD	538.351	93.29	9.32	753.247	138.52	1.38	≥ 900.00
Brasilia	272.002	268.35	26.83	252.070	248.69	2.48	≥ 850.00

Sources: Fibge 1970, Estimates 1973

\* Based on figures given by: Alberto Urdaneta in "Costo de Urbazacion", 1971

Key: NB = Nucleo Bandelrante  
TAG. = Taguatinga  
BRA. = Brazlandia

SOB. = Sobradinho  
PLA. = Planaltina  
FD. = Federal District

guidelines for a more progressive metropolitan policy. Our main assumption is that the actual economic distribution of the metropolitan area in separate satellite jurisdictions increases land values, creates and stimulates divergences in the quality of public output between the Pilot Plan and the satellite cities, increases the income regressivity and permits inefficiencies in the use of economic and social resources. The first theoretical assumption regarding locational patterns in the Brasilia metropolitan area stems from our former assumptions that locational constraints are different from the Pilot Plan and for the satellite cities. Central location has a more dense use and is more accessible than the satellite locations. Moreover jobs, business, culture and the whole set of recreational activities are diproportionally concentrated in the Pilot Plan. Therefore, the degree of substitutibility of suburban and central locations is a function of: <sup>(92)</sup>

- Price differences between central and peripheral locations
- Preferences for different land use patterns
- The spatial distribution of employment sources defined in terms of relative accessibility in each one destination
- Advantages and disadvantages of being beneficiaries by the local government policies regarding monetary and non-monetary "gifts".

we have shown that location in the Pilot Plan has concentrated all these advantages:

- Central location is favored by better environmental and density standards
- Central location has greater accessibility not only in the direction of employment but for any other interurban activities

These advantages can be analyzed under two general categories such as land use density and the effect of jurisdictional separateness in order to better evaluate our statements:

1. Land use density: The Pilot Plan has a double standard for land density used for the preference system of the upper and upper middle class. As very low densities run against the relatively high price of land and transportation facilities, in the developing countries, collective neighborhood facilities respond more efficiently to the demands for relative privacy - better than expensive horizontal lots. In Brasília, for the upper middle class, and middle class both possibilities are open by the single family residential lots added to the original pilot plan neighborhoods and surrounding all the periphery of the central city, around the city's lake. The price of this social privacy is the cost of the relative increase of accessibility for the remaining social strata located in the satellite cities. As in general, higher income households will find net advantages greater than the lower income households. It follows that high land costs and very low accessibility costs in the central city offset the overall costs of low suburban land and high travel costs for the majority of the metropolitan population. This general regressive locational pattern, as we have shown, is enforced by the zoning system of the Pilot Plan area. For the lower classes' lot demand, the unique locational choice now is in the satellite cities.

2. Advantages of the segregational spatial allocations. As a result, by establishing themselves in the Pilot Plan, the upper strata has to pay or earn for the following locational consequences:

-Interjurisdictional spillover effects. Because of the centralization of jobs in the central area, the presence of lower income strata in the central city is related only with the daily work journey. Therefore, Pilot Plan inhabitants must bear the cost of another's use of private services. However, the suburban outsider is exactly penalized or near the real cost in using central city facilities since all their potentially significant economic pressure in the Pilot Plan urban infrastructures was "transferred" to the local satellite cities jurisdictions. As a result the cost for the central government in providing the extra costs necessary to absorb the presence of "outsiders" in the central city is limited by a minimum (such as: daily transportation, some minor social services, etc.) At the suburban level the costs of local urban expenditures is borne by the local populations since in the cross use of public facilities there are also minimum items of expenditures due to suburban use by Pilot Plan residents. The resulting pattern is that the satellite cities rate tax is increased not only by the interjurisdictional spillover effects as an important item, but by the loss of the welfare charge formerly paid by the Pilot Plan residents. The Pilot Plan residents' tax rate will not exceed that of the suburbanites, and the advantages of the central city location will increase with income homogeneity, as the amount of advantages is a rising function of the mean income level.(93)

3. Income distribution and spatial location. For the Pilot Plan the Master Plan standards allow a continuous income homogeneity of households having incomes much higher than the whole metropolitan area mean. The populational disparity between the metropolitan area (80%) and the central area (20%) is not enough to offset the absolute amount of tax collected in the different jurisdictions. Therefore, the same total public expense in any and all different intermetropolitan jurisdictions would result in a lower tax rate in the richer community than in the poorer.

As a result, prices of public services will be relatively lower in the Pilot Plan than in the satellite towns. Public goods in the central area will experience a lower price due to a larger public demand reflecting high income levels and the high environmental qualities stated and enforced through the Master Plan standards. Therefore, institutional segregation resulted in a higher level of public goods provision for the social strata richer than the average and "segregated" in the Pilot Plan area.

4. "Erradication" policies and the burden of social welfare. The welfare expenditures are greater in proportion to the number of welfare clients in each different income area. Therefore, the satellite cities by including the absolute majority of welfare recipients will absorb higher absolute levels of public goods the larger the percentage of lower class welfare recipients contained in the local jurisdictions. The example of the Social Security squatters settlement highlights this point: Those inhabitants, actually, induced a stronger welfare charge in the Pilot Plan services and an overall expenditure for the Pilot Plan administration. With the remaining recipients spread throughout the satellite cities, the overall burden was divided amongst different metropolitan jurisdictions. As a result of these overall advantages, central city location increases income regressivity since the advantages of the central city locations are actually reserved for the upper income strata due to these institutional constraints. The poor suffer increasingly economic losses since income selectivity is maintained through the barriers of "physical regulations".

The most important result of this process and the reason why the poor fail to gain from Brasilia's metropolitan locational process is due to the fact that the whole central area was placed "outside" the normal market forces in such a way that normal market mechanisms can only operate outside the Pilot Plan. However, as the Pilot Plan commands the metropolitan price

formation, higher inner standards result in higher price patterns for the whole region without any significant response in order to equilibrate the process. The impact of the central area policies has on other jurisdictions cannot be balanced either by the economic relocation of the economic activities or by their consequent reciprocal impact in the central area. With an initial policy of economic values, the central city set a given urban policy aiming to a potential gain for their population. In a "normal" metropolitan area, prospective gainers can move toward the central area thereby determining a relative response value not only for the population on in the central city, but for the metropolitan area as a whole. This process will change population income composition and new marginal locations are determined. The size and the nature of the gains from the different jurisdictions together with income differences determine new price levels of public goods facing each jurisdiction. These new price levels and the relative mean income composition determine the level and the relative quality of the public goods in such a way that changes in the populational components are matched with the relative scarcity of the public sector supply. The pressure for a new equilibrium can be exerted upon the local public sector, or result in new migrational intra-metropolitan adjustments. Therefore, different public outputs levels are a cause as well as an effect of

locational decisions and the metropolitan area can be considered a dynamic system as a whole since households will be making locational decisions on the basis of a given present set of output differences, and these very decisions will change the output differences to provoke new future sets of unsatisfied adjustment. Relative equilibrium in the central city market means relative corresponding equilibrium in the satellite cities' markets, since the different jurisdictions are competing for the same metropolitan population. Therefore we have to investigate the general conditions leading toward a relative equilibrium in the metropolitan area to evaluate in what extent effective new policies can be introduced in the central city as well as in the satellite cities in order to promote the best progressive income distributions throughout the metropolitan area.<sup>(94)</sup> At the same time, this process will identify what important "institutional barriers" has to be modified in order to achieve redistributational goals.

As we are shown Brasilia is increasingly developed for richer households. Initial locational advantages for the lower strata were "tolerated" in the populist government and finally prevented by different new policies. Since the advantages of the Pilot Plan are larger, richer households have more to gain by living there. Therefore,



the low income suburban population is becoming larger and larger. Let us now consider the conditions for a "new equilibrium" in a metropolitan area in which restrictive elitist use standards are reduced, in order to compare the results with the case of Brasilia. Theoretically, populational equilibrium in a metropolitan<sup>(95)</sup> region occurs at a certain populational distribution and is a function of the net gain from moving from one city to another, experienced by a prospective migrant. The two main types of prospective gain are land density gains and different jurisdictional benefits. Land benefits result from living in an area where land density provides better environment than the ordinary cities for the upper strata. These requirements decrease with income until that of the consumption of a single lot necessary to physically support a lower income single house.

If the jurisdiction imposed restrictive zoning and higher minimum use standards, locational choice is constrained for the families with limited budgets and the resultant locational pattern is less satisfactory, than what would have been chosen given only its own tastes and "relative face" market prices. These elements are a function of a second set of interrelated choices including the utility significance of the value of privacy for each income level, the cost of accessibility and the constraint upon lot size. At a theoretical equilibrium,<sup>(96)</sup> these two sets

of functions neutralize the economic gains through which the migration and population levels are determined. Therefore urban migrational processes are a direct "measure"<sup>(97)</sup> of the relative unbalance of these two sets of values. Some of the properties of this new spatial and populational re-equilibrium can be summarized:

- If the price and the quality level of public goods is less in one jurisdiction as well as a smaller proportion of welfare, they are generally correlated with higher income and the imposition of external diseconomies from one jurisdiction to another. At this point, the potential mover finds that the comparative costs and their relative income allows for the migration. As others join the process, the marginal mover finds that the costs of the new community exceed the attractions of better privacy standards, partly because the population is now large enough so that the former advantages are offset. Moreover, the migrational process has caused a relatively significant fall in his former local rentals, and the accessibility is now worse due to the new transportation expenditures meaning that the former cheap land minimum lot expenditures represent now a significant cost. As a result, the extension of the metropolitan development urban frontier has proceeded to the point where the cost of the additional urban migration imposes costs on the marginal mover just great enough to reduce the migration gains of the marginal mover to zero. Therefore, equilibrium results from different demographic differences, in the provision of public goods, differences in income, differences in land price, and differences in accessibility, in the context of a relatively free set of economic and social urban choices.

To what extent can we identify those factors and large institutional constraints distorting in a high degree locational equilibrium in the case of Brasilia?

The difficulty in analyzing the metropolitan area of Brasilia is that cross-jurisdictional migrational flows as responses to different constraints excludes the Pilot Plan. Only migration from the central city toward other satellite jurisdictions is observed, because migration to the Pilot Plan is "exogenous" to the system, since only new upper middle class public employees transferred from other states are now being resettled in the Pilot Plan. As a result, high income homogeneity is increasing in the Pilot Plan without any mechanism for signaling in what extent the existing national income distribution has been amplified by the resulting spatial patterns of the Brasilia metropolitan area. Only the sensibility of the central government can detect the intensity of these imbalances affecting particularly the lower strata. On the other hand, the continuous expenditures in order to maintain the higher environmental and aesthetical Pilot Plan's ambience reflected in the symbolism of a Capital is likely to distort the fragile possibility for a more balanced metropolitanism. The government has enough power and institutional instruments to direct and to some extent reduce some of these imbalances. Therefore relative metropolitan equilibrium between different populational levels is a result of a particular set of values and policy instruments. Changes in these values

and in the nature of each one of the institutional policies can affect both the structure and the nature of the metropolitan components.<sup>(98)</sup> We will now give some guidelines for the kind of policies and the impact each one is likely to have in Brasilia's metropolitan area in order to promote progressive income distribution and social integration.

- Changing metropolitan standards: The first institutional barrier that can be changed is the residential and commercial zoning regulation in the Pilot Plan. These regulations specify the minimum lot size<sup>(99)</sup> permissible for Pilot Plan's residential areas and their main characteristic as we have shown is the preference for higher than average physical standards of land use. Therefore, any official policy lowering minimum lot requirements in the Pilot Plan benefits the poor. The actual zoning is only a bidding in the lower middle and the lower income strata. The positive effect of these proposed measures will be felt by the first household willing to move to the satellite city due to the continuous economic changes in the central area. The greater the lowering of these standards, the more intense the effects in the migrational processes affecting transactions within the whole metropolitan area. For households with lower and lower incomes, the discrepancy will be greater and greater since unconstrained lot choice is a positive function of income. The effect of these policies on the metropolitan area depends on where the positive effects will first be felt along the set of expenditures relative to each urban actual position. Since actual tendencies show a regressive income trend it's possible that the first results point in the direction of preventing the out-migration of the lower middle class from the Pilot Plan toward satellite cities. For the upper class the effects will be negligible since a new permissive zoning system cannot create significant losses in the privacy due to the relative spatial segregation already existing in the Pilot Plan neighborhoods. The net effect would be

a decrease in the segregational levels by different neighborhoods. The dynamics of the impact in the change of lot size can be used in order to increase the metropolitan populational balance since in-migration is a direct function of the magnitude of the standards adopted for the minimum lot. Moreover, since the value of accessibility from the satellite cities toward the Pilot Plan do not change significantly the effect of the minimum lot policies will be amplified. While the dividing line is important to the final effect "on equilibrium", political decisions can set an "admissible" ceiling for the process. As a colateral policy, changes in the regulation of business minimum requirements are also necessary, since the range of business desires in the central area are also limited by official minimum built area ceilings. As a result of a combined measure a proportion of new businesses would like to locate in the central area following new populational distributions. If the migration is set relatively free as in some "old" metropolitan areas increasing in-migration will increase land prices and decrease the price differences between jurisdictions. The result will be a lowering of the net gain from moving in the metropolitan area in the direction of the positive difference and thereby lowering of the land density gains. As the different jurisdictions use standards and building codes raises as competitive policies tools households respond to these sets of policies by inter-jurisdictional migration. Different quantities and income qualities of resulting populations tend to offset unbalances, reversing the induced tendencies. As a result each jurisdiction will discover an interior new optimum standard value. If intra-urban migration found relative free channels throughout the metropolitan area after a certain period necessary to comprehend the changes induced by new migrants each jurisdiction will arrive at a public policy decision and will set new best values for their local legislation standard levels. This change will induce further reaction of functions and a continuous compatibility with reality. Whatever the starting position if the system has a certain degree of freedom a "relative stable joint equilibrium" can be achieved offsetting significant losses. The spatial and populational result will be an interior equilibrium in the population distribution since neither jurisdiction will attract the whole population. Therefore not only standards

values as well as all other interrelated policy devices will achieve optimal new values as a result of the simultaneous interactions. The relative metropolitan stable equilibrium is obtained by a continuous determination of all policy variables at their resulting jointly maximum levels as a result of a complex integrative process between zoning and taxation instruments. The key issue leading to this dynamic equilibrium is not the efficiency levels of each local police in collecting revenues but the institution of a metropolitan process of decision making through which the different demands of different populations facing different and alternative sets of institutional policies in each and all satellite cities and Pilot Plans can be weighed by a criteria of progressive redistributive intentions. The greater the mobility as an answer to policy signals the greater the range for new redistributive policies since the central government has all the political and institutional power necessary to induce different patterns of growth and spatial distribution for the metropolitan area. Actual trends show that as the continuous degree of income inequality in Brasilia's metropolitan area is increasing, the greater are the Pilot Plan's benefits. This process is aggravated by the absence of free intra-metropolitan migrations that further prevent institutional evaluations of urban imbalances. In summary, the democratization of the metropolitan economic and social adjustments could be a direct function of the government democratic willingness regarding social justice in Brasilia's metropolitan area. Therefore, the political and institutional feasibility for these policy changes will be outlined in the next, final section.

#### 4.6 The Political and Institutional Feasibility for Metropolitan Change

The institutional feasibility for a change in Brasilia's actual metropolitan policies must be considered in the framework of the present Brazil's political regimes and their historic perspectives. For an answer to some of these questions on the institutional feasibility leading toward significant progressive changes we have proposed for Brasilia's urban policies, we have to assume some preconditions. I will try to distinguish between three types of macro-urban policies: First, the populist model I have described as a controlled urban mobilization of a population that by and large had not previously been mobilized in cities and was thus reasonably contained through a paternalistic process. The second type we have described as the present Brazilian stage and characterized by the deliberate "demobilization and containment" of the urban population that had previously been mobilized in the framework of a more competitive political situation. This second position is a "defensive" one based on the fact that the system did not possess or consider that it has the

capacity to satisfy the demands created by the urban masses within a controlled process of change. The third option is the one in which the present political and economic regime wants and can create a sort of restrictive mobilizational political urban participation in order to assure a stable rule over highly urbanized cities. We will explore some of this third institutional hypothesis. The need for a new urban policy has to be connected with the equivalent need to provide a legitimacy formula for the institutional regime in the future. The kind of urban society the new governments want to create cannot be institutionally molded by negative policies such as the manipulation of the urban masses in a broad process of "segregation or eradication." These regressive policies can be derived only as institutional devices in a transitional period mainly if these policies are molded within the scenario of political emergencies. However, this model can never satisfy those who argue that economic development and urban policies cannot remain in the realm of a confrontation of policies based in social coercion. The trouble with the actual economic and social policies consists in the fact, aggravated by the regime's actual "negative" urban policies, that these policies are inherently unable to generate the minimal conditions necessary for the incorporation of the huge migrant masses into urban patterns with levels of minimum



acceptable participation in the urban decisions. Therefore, the immediate result is the narrowing of the urban decision-making process in direct detriment not only of the lower strata but even in detriment to important sectors of the middle class. Furthermore, by establishing a discretionary urban decision making system which is unaccountable to the majority of the urban masses and expresses only the views of small technocratic circles the system works toward increasing deterioration in the "urban fabric" and creates all sorts of imbalances that as we have shown further restrain the development of a more stable urban society. As a result of the new political changes after the Revolution of 1964 and the relative freedom from pressures that might be brought by the marginalized masses, Brasilia's urban policy makers have been free to pursue a "radical" policy based on the market oriented high-consumption central city against a background of satellite cities, where the working class was hardly balanced by a local lower middle class sector. This policy was easily enforced because the government has repressed certain social sectors such as labor and the rural masses, whose economic shares have correspondingly fallen as a result of the relocational policies. While several of Brasilia's local government has had the will and the ability to impose these socially progressive urban policies, we will argue that these policies are no longer either economic or politically necessary

facing the new national economic realities. As we have argued, Brasilia's urban policies were based on the political and economic contradictions throughout the several national political phases, and the city was highly sensitive to different shifts among and within the classes due to the different political models. Therefore, we will survey to what extent changes in the economic rational model can induce new more balanced urban growing patterns in the central city and in the satellite cities in Brasilia's metropolitan area, such as we have proposed above. New economic policies like a relative change in the income distribution will alter the spatial urban shape in favor of a more differentiated and balanced growth. These distributional consequences cannot be ignored in evaluating the forecasting of new urban tendencies. The social costs of any urban policy or the urban policy based on restrictive growth cannot be ignored, especially since the intensity of the future growth will be greater than the actual. Moreover, the absence of formal politics and popular participation are not bound to impose a greater constraint on official policies, as would be possible under a freer regime. As a result, public policies are now made by an elite in absence of a public debate, and thereby reduced to a level of technical discussion virtually ruling out dispute over basic goals such as have been commented on in this thesis as the historical development of the satellitization process

and the continuously segregated urban growth in Brasilia. The independent forces of urban political influence have been progressively eliminated in favor of a technocratic-dominated system with a minimum of institutionalized opposition.<sup>(100)</sup> These new technocrats are basically antipopulist, given their middle class "rational" ideology. Their basic policies cannot be based on the functioning of the political reality of the past. These technocrats operate now in a "vacuum" left either by the traditional career politicians or the populist leaders. While the former populist alliance was made to bring together the urban masses middle class groups and the national entrepreneurs, it was caught up in a web of contradictions and interests ultimately based on their contradictory economic interests intrinsically not capable of promoting radical policies. The post 1964 regime forced out the national bourgeois sector as well as the activist development groups, that had until then been in a hegemonic position. These disposed groups were replaced by the "internationalized" sector of the national bourgeoisie which is necessarily more dynamic and more "capitalistically modern" because they are in essence part of the international capitalistic system of production.<sup>(101)</sup> The urban industrial pole, which has been growing at a fast pace since the Kubitschek period, now became dominant in the development of Brazilian capitalism. In the new context, public sectors and public enterprises

function more like private corporations enjoying a market freedom, rather than a political one. Associated mechanisms like the National Housing Bank have reduced conflict between public policies and private enterprises while restricting the area for broader popular influence. Given the picture just sketched, public policies regarding urban growth and economic development cannot be designed anymore outside the governmental ideology. Therefore, I argue that any possible change in urban policies cannot be brought about by external radical forces but by an internal economic requirement of the model facing some institutional or economic or social problems. I do not believe that minor institutional programs such as housing, the financing of some urban infrastructures, and other partial policies for the metropolitan areas, can introduce socially significant changes other than macro decisions such as the redistribution of some patterns of income, and the political willingness to accept a relatively popular metropolitan share in the urban process. Therefore, I will analyze the conditions for the feasibility of the new metropolitanism and the possible outcomes of new urban policies in Brasilia.

The overriding goal of the official policies regarding Brasilia's urban strategies is to strengthen the state decisional apparatus in order to guarantee political security through preventing dangerous political outcomes that could be generated by an intensive and concentrated urban growth.

This is a negative policy whose main characteristics I described in some "paradigms." As an alternative, I have explored some of the policies regarding an "opening up" toward a broad while "restrictive" participation of the middle class and some sectors of the working class in the share of the overall economic development through the appropriation of new urban facilities. While for the moment the official policies do not seem very interested in allowing these overtures, I will explore economic feasibility for them in the present horizon of economic choices. Anyway, these are the main prerequisites for reversing to some extent the regressive urban system we have described as antisocial, and we will focus our interest first in evaluating to what extent new economic realities already allow for some new liberal urban trends.

The main macro-economic approaches regarding the "opening up" feasibility are based on different interpretations of the national economic model and their consequences in the pattern of growth. According to one argument, the actual economic regime derived its pattern of economic growth through the import substitution process in such a way that led to an industrial structure producing goods for the rich. Any equalization in the distribution of income would lead to an underutilization of capacity in these luxury goods industries, and consequently a low rate of industrial growth.<sup>(102)</sup> Therefore, since politically

the regime is basing its legitimacy on its habit of guaranteeing a high rate of growth, it is forced to follow an income distribution favoring these goods and an urban policy favoring segregational growth patterns in order to allow for a continuously luxurious housing sector in a differentiated spatial growth. Among the undesirable aspects of this scenario is the probability that it will lead to a growing social segregation between radically different and contradictory social and economic strata in urban areas. Critics of the regime assert that these implicit contradictions may eventually lead to unbearable social pressures and toward a highly socially instable regime. In order to evaluate how important these arguments are, we will explore some results of the Morley and Gordon work<sup>(103)</sup> on the effect of changes in the income distribution in Brazil. These two economists developed an input-output model which simulated the growth of Brazilian industry under differently assumed changes in the distribution of income. They wanted to test the actual pattern of regressive income distribution in order to test also some hypothesis such as the Fislow<sup>(104)</sup> that "the resultant pattern may not be desirable socially, nor even maximize the rate of growth, but inequality does not preclude growth altogether by inevitable internal contradiction, anymore than growth requires inequality to be sustained."<sup>(105)</sup>

The model tested different hypotheses of growth patterns. Several experiments compared different growth trajectories in which the government is assumed to alter the distribution of income by a tax-and-transfer scheme that creates differential rates of growth for idfferent income classes. For the manufacturing sector, the results show (see Table XXIV) the more regressive the distribution of income, the higher the rate of growth of the economy, of manufacturing and of the employment in manufacture. This is due in good part to the importance of the consumer durables, especially automobiles and their supplier industries, such as rubber, machines, metals, and fuels in the budget of the rich. This supports the hypothesis that the type of industrialization built in Brazil during the import substitution period would grow most rapidly under regressive distribution schemes because it sells to the upper class. However, an important result of the experience was the fact that despite rather violent redistribution of income, the sectoral rates of growth of output and employment shows little variation. Within manufacturing, there is a subgroup of industries that is dynamic in all experiments, with the exception of the most progressive income redistribution. Those industries whose growth rate is positively related to progressivity are necessities: food and therefore both sectors of the agriculture (vegetable and animal products). A significant and dependent pattern was identified in the transportation

## XXIV

BRAZIL: PROJECTED GROWTH RATES IN 3 REDISTRIBUTION EXPERIMENTS  
(RESULTS IN PERCENTAGES)

	<u>Most Regressive</u>	<u>Most Progressive</u>	<u>Constant Growth</u>
Vegetable Product	5.21	5.51	5.48
Animal Product	4.79	5.54	5.21
Electricity	6.95	5.82	6.60
Commerce	6.69	6.00	6.44
Service	7.73	6.61	7.94
Wastes	8.86	5.46	7.61
Fuels	8.32	6.31	7.86
Packaging	6.04	5.55	6.02
Mining	7.07	5.35	6.57
Nonmetallic	8.86	5.77	7.43
Metals	8.62	5.52	7.40
Machinery	8.14	6.15	7.81
Electric Machinery	10.02	6.72	9.27
Transport. Equip.	11.37	6.08	9.45
Wood	8.35	5.30	7.20
Furniture	6.79	4.85	6.56
Paper	7.18	5.54	6.70
Rubber	11.80	5.11	9.26
Leather	6.67	5.61	6.47
Chemicals	7.40	5.88	7.03
Drugs	6.51	6.46	6.70
Cosmetics	5.17	5.66	5.52
Plastics	7.11	4.75	6.61
Textiles	7.31	5.61	6.98
Clothing	7.25	5.99	7.03
Food	4.55	5.32	4.98
Beverages	1.55	5.46	7.06
Tobacco	4.40	5.26	4.87
Publishing	8.63	5.41	7.54
Miscellaneous	7.54	5.32	6.97
Construction	9.52	5.15	7.65
Transport	8.32	6.82	8.16

---

Source: S.A. Morley and Gordon W. Smith, The Effect of Changes in the Distribution of Income on Labor Foreign Investment and Growth in Brazil--Rice University, 1971.



equipment and rubber industries on the fortunes of the upper class. Any policy which increases the rate of growth of the upper class accumulation will increase the rate of growth of the automobile industry and its suppliers (rubber, machinery, metals, etc.). Other experiments show that electric machinery, furniture, textiles, clothing and beverages increase their rate of growth when the middle class share grows. This suggests that it is the middle class which is the principal market for household durables and clothing. However, this positive effect of progressivity is swamped by the negative effect on the leading industrial edge of the transportation industry. If we now look at the composition of the industrial system controlled by foreign investments, it does not appear to be true in Brazil that these foreign firms locate only even principally in the sectors with high demand elasticities. Sixty percent of foreign investment profits come from nondynamic parts of the manufacturing. In several cases (tobacco, drugs) the foreign firms dominate sectors whose growth rates are positively correlated with progressivity. However, those firms are overshadowed in the end by the 25% of the foreign investments associated with the automobile industry (21.8% in transportation equipment, 4.8% in rubber). These foreign investment patterns can be traced following different economic epochs: old investments associated with the traditional capitalistic dependence of the country from the

central countries and a new sector located in high income, elasticity goods - dynamic sectors such as automobiles, consumer durables as a result of the substitution process initiated in the 1950s. This double character, spread foreign investment throughout the industrial sector coupled with concentration in the dynamic sectors explaining the relative insensitivity of the overall growth rates to significant changes in the final demand when income distribution is changed. The historical tendency for the increasing share of the industry by foreign investment also shows that the era of rapid growth pattern is over and we can now forecast a more balanced growth and with it a general stability in the share of the foreign firms. One important result regarding labor absorption is that while industrialization of the 1950s was as a rule capital intensive, it is much more likely that future industrial growth will come from an expansion of the internal market rather than only by substitution of capital intensive imports.

If true, these results could lead to the formulation of a less segregated urban policy, since the main assumption underlying the official strategies is the incompatibility of the rate of growth between urban employment opportunities and the urban migrational processes. Therefore, potential sources of political and social instability cannot be identified in the main aspects of the economic development since different patterns of final demand tend to produce

similar growth in the intermediate and capital goods production. The implications of these results are important, aiming to create new urban policies: First, the labor absorption problems are not sensitive to changes in the income distribution nor likely to constitute an urban problem in order to maintain as public response a segregational and spatial confinement of the lower class in satellite cities. Second, the stability of the several growth rates means that the central government could afford a quite high redistribution of income without jeopardizing its overall growth, while only minorily penalizing important industries like automobiles or consumer durables (transportation equipment, metals, electric machinery, etc.). The net result for the urban structures would be a reinforcement of those economic sectors likely to induce a more balanced local growth within each satellite city. These new redistributational patterns would allow the derivation of new local and metropolitan policies. The need for more comprehensive urban programs would be matched by the corresponding demand, rather than by stagnant wages and regressivity or government loans. Particularly in the case of Brasilia, real wages in government services would increase in pace with the leading private activities. Therefore, it is reasonable to expect that real levels of public services such as education will hold constant or at least increase despite their unfavorable cost trends. Education will be in a particularly strong

position since it could provide access for the new service sector we have shown will perform the progressive sector in the future local economy. At the micro level some important consequences could be derived: the changing income distribution will place the local government in a position to change urban metropolitan expenditures emphasis, and urban policies could be reconsidered in the direction of the progressive policies we have outlined below. The redistribution of income will be relatively greatest in low and middle income areas. Therefore, if these needs are to be satisfied (and they are basic necessities) the proportionate employment requirements in the satellite cities will grow proportional to the local economic advantage. The changing incomes and the associated budgetary pressures in the satellite cities will have their effects on the expenditure mixture within each city. The progressive income distribution must be reflected in a related progressive local lowering of urban standards in order to prevent the upper strata in each satellite city from "associating" urban transfer costs for the lower strata, therefore offsetting real income advantages. The role of the central government is to control the relative progressivity by varying the local and metropolitan policy instruments such as sale tax, real estate tax, property tax, building codes, etc. If these instruments are adequately implemented, and the central government has all the institutional powers for that, the

progressive income distribution coupled with the progressivity of a metropolitan settlement code system will result in a propensity to migrate for the low middle class toward the Pilot Plan. In other words, its feasible for the government to increase the advantages of the central city for some new social strata and for those most sensitive to locational inducements through taxation instruments. The key issue in this process is the ability and the willingness of the government to, at this moment "open up" the physical redevelopment of the central city in such a way as to benefit this new social strata. The dynamics of this process, of reversing satellitization, can be summarized as following" a progressive tax structure and metropolitan policies whose income is tied to sectors trying to "counter-balance" the income progressivity in the satellite cities, while increasing employment linked to local new economic activities could "afford" the exodus of that part of the low middle class toward the Pilot Plan. This context brings us ultimately to matters such as the use of zoning and standards stated in the Master Plan. Central government policies should review the standards adopted in the Master Plan, now, not as an aesthetic device for the maintenance of a visual order, instead as an institutional device to "open up" locational choices in the central city for those different social strata willing to accept it as the result of economic accommodations at the local urban

level due to macro economic redistributational policies. The Master Plan at this moment must be replaced by an increasing strategic plan for social locational planning. The point we want to stress is that there is a social and economic need to interconnect a particular progressive macro economic growth policy with a particular democratic metropolitan growth process.

## FOOTNOTES

### Paradigm I

1. Hauser, Arnold, "The social History of Art," Vintage Books: New York, 1957. See also, Manerism the Crisis of the Renaissance and the Origin of Modern Art, Paul Kegan, London, 1965.
2. Ibid.
3. LeCorbusier, Ourvres Completes, Zurich: 1957, Urbanisme. Quoted by Banham, Reyner in Theory and Design in the First Machine Age, The Architectural Press, 1960.
4. Ibid.
5. Ibid.
6. Ibid.
7. Ibid.
8. Costa, Lucio, Master Plan Report in Rev. Modulo, No. 8, 1957.
9. For a philosophical qualification of these concepts, see Bachelard, Gaston, "Le Nouveau Spirit Scientifique."
10. For a complete description of Costa's plan, physical strategy and formal configuration, see the Master Plan Report which is followed by a series of illustrative drawings showing the spatial urban organization proposed for the new capital.
11. Ibid.
12. Map I shows population distribtuion (shaded areas) within the boundaries of the Guanabara state (today part of the newly created Rio de Janeiro state): travel time in minutes is shown by solid lines linking equal travel time zones (origin is C.B.D or in the map the point which corresponds to the city's cathedral named Candelaria). Circles show physical distances in kilometers from the same origin. Map II shows the geographical distribution of the satellite cities surrounding the Pilot Plan, which due to the large scale is reduced to a single point used as the origin for travel time and distance evaluations.

Footnotes (cont.)

13. He states further: "The liberation of access to the Brasilia's Plan Competition was reduced in a certain way to a consultation, which resulted in the urban conception of a city as a matter of fact as in this case it was not the passing away of regional planning but a cause of it: its foundation is what will give opportunity to the further development of the region." Costa, Lucio Pilot Plan Report, in Revista "Modulo", No. 8, Rio, Julho 1957 (emphasis, M.V.F.).
14. On open language and urban open design, see: Eco, Humberto, "A obra-aberta", Ed. Perspectiva, São Paulo, 1964.
15. Ibid.
16. Costa's accusations of "alterations" of the original Pilot Plan so uncertain as poorly located have served the pretext to demonstrate that the problems of Brasilia prove uncomplimentary of a basic plan, capable itself of guaranteeing the homogeneity and the absence of serious problems which the city lives today. In any event, Costa insisted on citing his complaints against the "modifications" limiting himself to the attack on only obviously secondary problems in the development of the city or in the lamentation against social segregation in the residential areas. For example, (See "An Interpretation of Brasilia" in Revista de Instituto de Arquitetos, No. 76, October, Rio 1968) Costa said: "the Pilot plan proposed (this was his most important characteristic from the social point of view) to unite in every one of these neighborhood areas the various economic categories which constitute, in the regime power, a society, the goal of which is to avoid the stratification of the city into rich and poor sections. Unfortunately, this fundamental aspect in the conception of Brasilia still cannot be realized. For its part, the false realism of the "real state mentality" insisted in selling apartments on the pretext of making the undertaking self-financiable; the utopic abstraction only would acknowledge the same type of apartments as if the present society were classless. And in that way, the opportunity of its truly rational and humanistic solution for the times has been lost." See also: Costa, Lucio, "Brasilia dez anos depois," in Revista do Clube de Engenharia, Rio, March, 1970. There are no references to the problems



Footnotes (cont.)

generated by the intense satellitization, the debates instead focus on some of the areas of the Pilot Plan, where some alterations particularly in the aesthetical part are threatened more directly by the physical image of the plan. The references to the "real state conspiracy" are to say the least, naive (emphasis M.V.F.).

17. Other Brazilian capital cities like Belo Horizonte and Goiania, founded on a physical geometric pattern of urban design, showed how those planned areas were transformed into an exception to the urban fabric of the city, at once ending the mechanics of control of the implementation of such projects.
18. We will call it Rocha-Gonçalves for brevity.
19. The judges of the competition criticized, as in the project of Costa, the huge quantity of land left indiscriminately between the planned area and the artificial lake, later reduced in the definitive location of the city. It becomes very difficult institutionally to "protect" the zones remaining joined to the transit axes all around the city, principally when the low density adopted and the intense urbanization process makes for an increase in demand for the occupancy of these "institutionally empty" contiguous areas. Rationalism continues to operate as if the city were an aesthetical effect of a built form against an unoccupied "green landscape" used as a background. See the "Atas do Juri," and the papers introduced to the competition for the Pilot Plan, in *Modulo*, No. 1, Rio, July 1957.
20. The authors Rocha-Gonçalves projected later for the actual city of Brasilia a super block neighborhood where the principle of contiguous mixed location of diverse residential units (single house and walk-up apartments) demonstrated to be greatly acceptable to the public for the variety of ambience and for the social animation brought by the spatially juxtaposed different activities.
21. Wilhelm, Jorge, "Brasilia Year 2000" in *Revista Acropole*, pp. 375-376, July-August 1970. Commemorative edition of the 10th anniversary of the new capital, São Paulo.
22. Maliz, Boleslaw, "La formation de systemes d'habitat; Esquiss de la Theorie de Seuils," Dunod, Paris, 1972.

Footnotes (cont.)

23. The costs of the urban infrastructure in Brasilia shows a pattern of subutilization in all the basic urban equipment as shown by the figures below. Most of this equipment was constructed in empty areas and remained useless until full future use. The following urban standards were published by the "Brazilian Statistic Yearbook," 1972.

1. Water System: Brasilia has the third national network of residential water supply if we consider the extension of the trunk lines. However, if compared with Rio and São Paulo, Brasilia's network shows a lower index of individual household connections, as follows:

<u>City</u>	<u>Total Network Extension(meters)</u>	<u>No. of House- hold Connec- tions</u>	<u>Ratio Meter/ Household Connections</u>
Rio	4,211,311	376,001	11.2 meters
São Paulo	6,222,834	622,810	9.8 meters
Brasilia	1,804,911	43,843	41.0 meters

For a total urban population of less than 20% of that of Rio de Janeiro, the total network length of Brasilia's water network is almost 43% of the Rio network.

2. Sewer System: Brasilia has the third national network of residential sewer systems. However, the number of households served is lower than those from Rio and São Paulo, as follows:

<u>City</u>	<u>Total Network Length(meters)</u>	<u>No. of Dwell- ings Served</u>	<u>Ratio Meter/ Dwellings</u>
Rio	1,978,000	191,265	13,0 meters
São Paulo	3,410,521	345,960	9,0 meters
Brasilia	711,350	17,352	40,0 meters

24. Roberto, M. M., Plan published in Revista Modulo, No. 8 Rio, 1957.
25. Levi, Rino, Plan published in Revista Modulo, No. 8, Rio, 1957.

26. Copacabana-Leme neighborhoods (Rio de Janeiro, south zone) population densities - 1960 census,

Neighbor- hoods	Popu- lation	Tot. Area (hectares)	Density per hec- tare	Built Area	Density by hec- tare
only Copacabana	167,383	405	413	--	----
Copa. + Leme	167,383	405	413	208	805
	18,267	117	117	52	351
Copacabana tot.	185,650	522	356	260	719

27. Velho, Gilberto, "A Utopia Urbana - um Estudo de Antropologia Social," Zahar Editores, Rio 1973.
28. This behavior also is observable in Brasilia in the move of families of greatest income levels from the Pilot Plan apartments to the plots located on the edge of the lake. These plots are composed of single family houses in individual lots of a minimum 1,000 square meters area. Among the arguments presented for the move, predominates the "protection" of the children against "vices" and "companions not recommendable" supposed to exist in the Pilot Plan neighborhoods.
29. Velho, Gilberto, op. cit., p. 70.
30. The velocity of elevators at present time is already at 700 meters per minute.
31. Roberto, M.M., "Relatorio do Plano Piloto" in Modulo, No. 8.
32. Ibid.
33. The same hypothesis of "urban cells" was recently proposed for the plan of New Bombay (India). See documentation in Meier, Richard, Planning for an Urban World, M.I.T. Press, Cambridge, 1975.
34. The example of the Costa plan implementation is interesting: it developed first the southern portion of the city, once that its roadway residential axis coincided with the entrance of roads to Belo Horizonte, from where came the machinery and equipment for the construction of Brasilia. As a result the city was born in that way in "disequilibrium" and this unbalance

Footnotes (cont.)

has been accentuated with the construction of the northern urban sector, presently a section of lower social class distinction and built in poorer urban qualities, as an "internal suburb" within the city. The notion of equilibrium here is used as geometric equilibrium, through which each nuclei would have some form and some population levels.

35. Roberto, M. M., Relatorio do Plano Piloto, op. cit.
36. Ibid.
37. See the "Plan of the Seven Roadways," in LeCorbusier, complete works, Zurich, 1968.
38. Cristaller, W., cited by Isard W. in Location and Space Economy, The M.I.T. Press, Cambridge, Mass., 1956.
39. Losch, A., The Economics of Location, Yale University Press, New Haven, Conn., 1954.
40. Beckman, J., cited by Derycke, P. H., "La economia Urbana," Instituto de Estudios de Administracion Local, Madrid, 1971.
41. Isard, W., op. cit.

Paradigm II

42. The military regime that came to power in Brazil in 1964 is one of the most controversial among developing countries since it was a result of an authoritarian political structure combined with one of the highest G.N.P. growth rate in the world. Questions about these new relations between political authoritarianism and urban policies regarding Brasilia will be discussed below within this basic framework.
43. Furtado, Celso, The Economic Growth of Brazil, Berkeley, University of California Press, 1963.
44. See Jaguaribe, Helio, "Political Development," Harper and Row, 1975.
45. For a broader political discussion on Kubitschek's government policies, see The Planning Process and the Political System in Brazil: A Study of Kubitschek's

Footnotes (cont.)

Target Plan, Lafer, Celso, unpublished doctoral dissertation, Cornell University, 1970.

46. Lessa, Carlos, quoted in Lafer, also, op. cit.
47. The following remarks are based on the research, The Squatter's Rights of Favelados, Conn, Stephen, C.I.D.O.C. Cuaderno, No. 32, Cuernavaca, Mexico, 1969.
48. Conn. Stephen, op. cit.
49. During populist government, public employees willing to move to Brasilia earned an "extra" wage. Other subsidies such as a fund for aiding in the move to Brasilia further increases locational advantages.
50. Apartment standards in Brasilia such as finished floor area and neighborhood public equipment such as playgrounds, landscape, parking facilities are far better even than upper middle class standards in traditional cities.
51. Costa, Lucio, Master Plan Report, op. cit.
52. The survey was made by Paviani, Aldo and Barboza, Maria Ignez and presented as a working paper at the conference of Latin American Geographers, the University of Calgary, June, 1973. The data was collected by a basic stratified sample in a proportion of 4,17% and an error of 0,05. The number of questionnaires used in different satellite cities was 2,540. The results were analyzed by using factorial analysis.
53. See Turner, John, Freedom to Build, New York, 1972, especially p. 165, Vital Needs - Income Level.
54. Some of the most important characteristics of the populist administrative and political machinery was the network of compulsory representative and social organizations. From these, the most important from a social standpoint was the social security system. Brazil was a pioneer among developing countries in its early commitment to extensive social security coverage. The system spread by the creation of new "institutes" or "fund" ("Caixas"). All these funds and institutes had the basic purpose of providing pensions. The additional social services varied widely, most frequently was health care such as the social security

hospital. The political result of this system was that the entire urban sector under compulsory coverage (such as shop clerks, workers, gas station attendants, journalists, commercial employees, public servants, etc) was incorporated into a populist urban welfare system more comprehensive than that of many developed economies. Therefore, a significant proportion of the real income is received in services (such as medical care and social facilities) than the frequent variations in cash income in the job market. In a society of low wage levels, high underemployment and disguised unemployment, these real benefits are significant. "A history of social security legislation in Brazil, 1923-1966 by Brumbaugh, Chalmers - unpublished paper.

55. This explains the alliance between worker and business trying to prevent official policies of erradication.
56. Epstein, David G., The best study of planned and spontaneous settlement in Brasilia was made in the book Brasilia, Plan and Reality, University of California Press, 1973. The book is a version of a doctoral dissertaion and the author had lived in Brasilia for several months between 1962 and 1964.
57. For the implementation of the Brasilia Master Plan, the Kubitschek government obtained an independent government nucleus acting as public enterprise, the NOVACAP to the agency was assured earmarked funds and financial resources as well as technical personnel capable of implementing the Pilot Plan. These economic resources allocated under titles such as "General Works," were actually due to monetary emissions since taxation was insufficient to cover the government's current expenditures. As a result, NOVACAP's funds were used regarding Brasilia's both political and administrative commitments. Therefore, though the Kubitschek administration wanted development with stability, it was forced to accept the development of Brasilia and all urban subsidies and expenditures within a conciliatory approach to the needs of the political coalition.
58. C.B. stands for Brasilia's only newspaper Correio Brasiliense.
59. In the original Master Plan, the process of financing apartments was based on market price transactions in which public employees were the sole beneficiaries of a financial system based on long range instruments, increasingly devaluated by the growing inflationary

process. Moreover, public employee's wages were artificially high as a "social compensation" for their move from the "old" cities. After the institution of the free market transactions (1964) with inflationary correction for all payments, these apartments were sold at huge profits.

60. Due to the necessity to meet political deadlines in the construction of the city, public works were assigned to contractors without public competition following the criteria of competing prices.
61. The ideological roots of this kind of "professional detachment" are commented on in 1.1.3.

### Paradigm III

62. Grebler, L., Capital Formation in Real Estate, Princeton, 1956.
63. Quoted from the monthly magazine, Visão, 1973 - "By official market transaction we understand all legal land title, approved condominium juridical statement (incorporated) approved architectural project, approved engineering project and legalized construction. Only this market is entitled to receive government financing.
64. Monthly magazine, Visão, op. cit.
65. The process used to build these figures was the following: The prices for apartment purchase were collected through Brasilia's Sunday newspapers, real estate and private owner advertisings.

The cost per square meter was obtained by dividing total apartment selling prices by the mean area of each unit type. Therefore, prices per square meter are mean selling prices for the Pilot Plan area.

Distances from C.B.D. were plotted in the horizontal axis. As each neighborhood unit is 500m long, the distance between each unit and the C.B.D. is obtained as a multiple from these units. For example, neighborhood numbered as 10 (ten) is distant 5000m. from the C.B.D.

Neighborhood units are classified by income levels as stated in the Pilot Plan: numbers 100 and 300 as upper and middle class, numbers 200 and 400 as low middle

and low income.

In conclusion, price levels for all neighborhoods were positively correlated with neighborhood physical quality and irrelevant as a function of C.B.D.'s distance.

66. A recent (1974) example of Costa's middle class prejudice against "informal settlements" located near the Pilot Plan we transcribe below the following verbal exchange between Costa and Brasilia's director of planning economist, Gilberto Sobral:

Sobral: ...the population ceiling for the existent satellite cities was almost reached. Taguatinga, for example, if we take into consideration the relation between its population and the quantity of planned urban lots, it's very likely that the "saturation" point is already reached; likewise the remaining satellite cities also display a very high population level. What happens is that the urbanization patterns are being made through squatters' settlements, since the large portion of dwellings is "provisional"...at any rate our idea is to create new satellite cities since the actual ones are reaching their population ceilings.

Costa:...but within one condition, that these new satellite cities must not be located between the Pilot Plan and the existing satellite cities; they must be further away.

Sobral: Absolutely, professor. Actually we located them further away.

Source: Preceding from the "First Seminar for the Study of Brasilia's Urban Problems" - Brasilia, 1974.

67. SHIS would deal iwth house problems of those people whose incomes were below 2.5 times the minimum wage (U.S.\$37.00 in 1967) so that 2.5 times it would be a little under U.S.\$100.00. The political significance of SHIS is reflected in the fact that the new prefect of the Federal District and his secretary of social services under the Costa and Silva National Government (1967) both were former directors of SHIS. Therefore, the problem of squatting was always considered as the key strategical urban issue.
68. Epstein, David G., op. cit.



Footnotes (cont.)

69. Table XIV was organized following these requirements:

- Income levels in U.S. dollars were taken from Table XVI showing the relationship between income level and location in different satellite cities. As a result the social mix in each satellite can be deficient. The first column showing the social mix can be compared against the second column showing the percentage of official housing financing segregated by each income level in each satellite city. Totals show the following of the total housing funds allocated for the Pilot Plan and the satellite cities.

70. It's interesting to stress the intimate relationship between the eradication policies and the quantitative forecast for new residential units financed by official loans within the technical rationalist building prejudices.

71. There is evidence of some internal "dissent" between CEI's bureaucrats about these regressive policies.

72. See 3.3.1.2 Land Tenure: Legal Rights and Institutional Control. The enforcement and implementation of the eradication policies never had taken into consideration the economic loss suffered by the squatters by the loss at the occasion of the eradication move of their physical investments such as kitchen gardens and domestic animals raised as food, besides the loss of all the locational economic advances.

73. CEI (Comissão de Erradicação de Favelas) - therefore the ironically named Ceilandia for the city created for the reception of the eradicated squatters.

74. Quoted in the Social Service Foundation Report (1965).

75. A total of 82,094 squatters were removed between March 1971 and March 1972. The Haussman plan for the radical urban renewal of Paris removed some 30,000 inhabitants from the city's central area.

76. The evolution of Brasilia's public expenditures can be seen through the following data.

Footnotes (cont.)

Years	Population	Per Capita Expenditures (in cruzeiros)**
1960	388,202	590,71
1967	432,442	492,82
1968	487,284	695,41
1969	530,122	638,00
1970(*)	574,331	513,00

(\*) estimated - source, Codeplan.

(\*\*) not deflated for inflation

77. See footnote 70.

78. See Table XXVIII Urbanization Costs.

79. For example, the percentage of Brazilian employees in public service following the three lowest levels of schooling is 38%; 11% are illiterate, 14% are literate and 13% have between 1-4 years of schooling; see Carnoy M. and Katz, M., Explaining Differentials in Earnings among Large Brazilian Cities, Urban Studies, Vol. 8, No. 1, 1971.

The study also considers that: "If Brazilian labor is divided into more homogeneous skill levels, it is only the real earnings of low and moderately skilled workers which are less in the slower growth regions. It is low-skill labor-intensive industry which tends to move to lower growth regions." Since the study was made considering eight capital cities excluding Brasilia, it is clear that we can expect that polarization of growth will be enforced between highly developed regions (the south) market by lower-cost high-skilled labor and lower developed regions (northeast, center-west (Brasilia) marked by lower-cost unskilled homogeneous labor.

80. Table XVII shows the predominance of industry, services and public management in total employment. More than one half of these activities are centered in the Pilot Plan area.

PARADIGM IV

81. Lewis, Wilfred, Urban Growth and Suburbanization of Employment: Some New Data - quoted in Harrison Bennett, Urban Economic Development, The Urban Institute, Washington, D.C., 1974

Footnotes (cont.)

82. In these figures, hourly population is shown as a percentage of the working population leaving or entering each satellite city. "Provisional localities" (Squatters and favelas display the deepest profiles showing the lower local job) absorption and the consequent heavy daily commuting toward the Pilot Plan and other satellite cities. These graphs are from the unpublished work: Mobilidade de Populacao no Distrito Federal, Paviani, Aldo and Barbosa, Ionez, University of Brasilia, Department Geosciences.
83. The length of each arrow gives the total and proportional number of daily passengers commuting (one way trip) toward the Pilot Plan. The most important flows come from Taguatinga (15,000), Guara (13,000), Gama (10,000) and Sobradinho (5,000). Some of these movements start at 4:00 a.m. and earlier (Figs. 6 & 7). As a result of the daily work schedule in civil construction (from 7:00 a.m. to 4:00 p.m.) some of the civil engineering companies used to work in three continuous shifts during all 24 hours, which explains trips scheduled between 10:00 p.m. and 4:00 a.m. Commuting is made using bus services offered by one public and three private organizations. A significant data is the number of bus trips per person; in 1970 each individual had made 126.7 trips (per year), while in 1962 this number was 82.1. Therefore, commuting due to increased suburbanization grew 54.3% in nine years (Codeplan Diagnóstico do Sector Transporte, 1971).
84. Data from Villaça, Flavio, CEPAM - São Paulo.
85. See, for example: Codeplan "Estimativas" (1983), 1972.
86. See Table 19 in Harrison, Bennet, Urban Economic Development, op. cit., p. 44.
87. See footnote no. 66.
88. Data from "Cura Project" - pilot survey promoted under the supervision of the national center for housing research (CENPHA) and H. J. Cole Associados, Rio, 1972.
89. The rodoviary axis for example is a 16 km. long avenue using a large strip of empty land due to the physical necessity of providing only for the rodoviary interchanges. As a result, this vacant area is almost half the total area used for low income neighborhoods.

Footnotes (cont.)

90. See below for the comparison of different local government revenues.

Revenues	1966 %	1967 %	1968 %	1969 %
1. Local generated revenues	17.1	19.8	15.9	13.6
2. Federal revenues	81.5	41.2	53.1	56.3
3. Taxation on local wheat consumption*	--	34.8	26.0	29.2
4. Credits	1.4	4.2	5.0	0.9
Total Revenues	100.0	100.0	100.0	100.0

Source - Codeplan, Orçamentos e Balanços, 1970

\*Taxation on wheat actually is also a federal aid since for other states taxation of this kind is a federal privilege. As can be seen, continuous federal aid to the city is a result of decreasing availability of local financing.

91. Table XXIII shows the relationships between different urban population densities and urbanization costs. These costs were based in the work made by Urdaneta, Alberto in Costo de Urbanization, Caracas, 1971.
92. For a more detailed theoretical discussion metropolitan policies, see: Rothenberg, Jerome, "The Impact of Local Government on Intra-Metropolitan Location, M.I.T. Department of Economics, Working Paper No. 45, 1971, and "Local Decentralization and the Theory of Optimal Government in Edel, Matthew and Rothenberg, Jerome, Readings in Urban Economics, MacMillan, New York, 1972.
93. Rate tax is considered from now on as the whole set of urban tax with direct impact on metropolitan location. The fact that each satellite city has no administrative autonomy vis-a-vis the Pilot Plan administration and the federal government further increases economic inequalities, since local jurisdiction demands cannot be transformed in local urban decisions without being mediated through the central government. We will argue further for the necessity to achieve a metropolitan policy combining a relative freer degree of local administrative freedom with macro-policies derived from the evaluation of

Footnotes (cont.)

metropolitan problems through the characteristics of the intra-metropolitan migrations patterns. Taxation while constitutionally equal for several jurisdictions, changes significantly since they are tied to use standards and building codes, each one different according to each jurisdiction. Economic characterization in the framework of the actual metropolitan policies central government (Pilot Plan) decides on the economic demands from all metropolitan areas.

94. We assume that the regressivity of this process is increased by the willingness of the central government in meeting the growing physical and environmental demands calling for the Pilot Plan's continuous "aesthetical symbolism." For example, growing expenditures for the maintenance of the Pilot Plan's expensive landscaping and gardens has reached such high levels that local authorities were forced to substitute natural grass by rock and sand in some Pilot Plan's new lower middle class neighborhoods' communal gardens.
95. Therefore, metropolitan population equilibrium is considered a function of the degree of freedom for the set of local (satellite cities) responses to urban changes derived from the actual changes in metropolitan policies due to changes induced in the Pilot Plan overall policies (taxation, codes, subsidies, housing policies, prospective plans for new constructions, etc.).
96. See Rothenberg, Jerome, op. cit.
97. It's clear that Brasilia's Pilot Plan can perfectly meet locational advantages for lower middle classes now continually expelled toward the satellite cities, as a consequence of raising living expenditures throughout the Pilot Plan area.
98. For example, continuous out migrations toward satellite cities is an economic indicator for the continuous elitization process and restrictive Pilot Plan's policies. Migration toward Taguatinga is an indicator of unrestrictive lot standards, social mix and social welfare opportunities there.

Footnotes (cont.)

99. The Pilot Plan's residential code standards are based on a system of "condominiums." Each neighborhood has a total of eleven equal site "projections" in which only a story block can be built. Minimum apartment standards is a 30 square meter unit composed of one single living room/bedroom, bathroom and kitchenette. However, as the total area to be built is the same no matter the apartment type size is therefore chosen by market demands. Since income levels are higher and higher in the Plan, the principal demand is for larger and expensive apartments (chiefly 3 bedrooms with 120 square meters and 4 bedrooms with 200 and more square meters). Therefore, the social determination of floor space standards and residential typologies in the Pilot Plan is a direct result of the regressive metropolitan policies. Figures 2 to 5 show these price levels if we consider neighborhoods numbered 400 as composed of one, two bedroom apartment types, neighborhood 200 as composed of two and three apartments with one bathroom and neighborhoods 100 and 300 as composed of either three or four apartments with two bathrooms, service area with an extra domestic servant bedroom and covered garage. Another consequence of the elitization process is the continuous decrease in the percentile ratio mix of different apartment types in each neighborhood. As a result neighborhoods are more and more becoming "socialized" in apartments for distinct high and upper middle income levels.
100. For an extremely useful characterization of Brazil's economic and political changes after 1964, see Stepan, Alfred, ed., *Authoritarian Brazil*, Yale University, 1973.
101. Cardoso, Fernando Henrique, *Associated -Dependent Development* in Stepan, Alfred, ed., op. cit.
102. This thesis is supported by Furtado, Celso in *Obstacles to Development in Latin America*, Anchor, 1970 and by Georgescu-Roegen, in "Structural Inflation, Lock and Balanced Growth, *Economie et Societes*, 1970.
103. Morley, S. and Smith, G., *The Effect of Changes in the Distribution of Income on Labor, Foreign Investment and Growth in Brazil*, in Stepan, Alfred, ed., op. cit.

Footnotes (cont.)

104. Fishlow, Albert, Some Reflections on Post 1964  
Brazilian Economic Policy, Stepan Alfred ed., op. cit.
105. Fishlow, Albert - Ibid.

## BIBLIOGRAPHY



I. BRAZILIAN PERIODICAL PUBLICATIONS  
(in Portuguese)

Backheuser, Everardo

Localização da Nova Capital: Clima e Capital  
Boletim Geografico (Rio de Janeiro) 5(56): 871,  
Novembro 1947

Backheuser, Everardo

Localização da Nova Capital - Criterios de Escolha  
Boletim Geografico (Rio de Janeiro) 5(57):967,  
Dezembro, 1947

Bernardet, Jean-Claude

Brasilia, Cidade Historica - Depoimento  
Acropole 375-376: 74-75, Julho/Agosto, 1970

Corona, Eduardo

Lucio Costa e Brasilia  
Acropole 385: 8, Junho, 1971

Costa, Lucio

Brasilia  
Arquitetura 78: 35-36, Dezembro, 1968

Costa, Lucio

Carta a Comissão do Distrito Federal  
Acropole 385: 35-36, Junho, 1971

Costa, Lucio

O Urbanista Defende a Sua Capital  
Acropole 375-376: 7-8, Junho/Agosto, 1970  
Revista do Clube de Engenharia 386: 12-13,  
Marco/Abril, 1970

Costa, Lucio

Plano Piloto de Brasilia  
Acropole 256/257:51-59, Fevereiro/Marco, 1960  
Arquitetura e Engenharia 44: 8-12, Marco/Abril, 1957  
Arquitetura e Engenharia: 61/63:16-20, Julho/Dezembro, 1961  
Modulo 8: 32-38, Julho, 1957  
Modulo 18: 53-57, Junho, 1960  
Revista de Clube de Engenharia 386: 14-22, Marco/Abril, 1970  
Revista Brasileira dos Municipios (Rio de Janeiro) 10:  
41-44, 1957

Cunha, Mario Wagner Vieira da

Brasilia em Transição  
Bem Estar 1: 23-24, Fevereiro/Marco, 1958

Brazilian Periodicals (cont.)

Faissol, Speridião  
Brasília, A Nova Capital do Brasil  
Boletim Geografico (Rio de Janeiro): 18(156)  
351-352, Maio/Junho, 1960

Ferraz, Geraldo  
Construcao da Nova Capital: Brasilia  
Habitat 37: 52, Dezembro, 1956

Holford, William  
Critérios do Julgamento do Concurso de Brasilia  
Brasilia 15: 8-10, Marco 1958

Holford, William  
Problemas e Perspectivas de Brasilia  
Modulo 17: 2-3, Abril, 1960  
James, Preston E. & Faissol, Speridião  
O Problema da Capital do Brasil  
Boletim Geografico (Rio de Janeiro) 17(158):771-783  
Setembro/Outuero, 1960

Le Corbusier  
Brasília Tem o Sentido Exato de Espaço e Cor  
Arquitetura 8: 17-18, Fevereiro, 1963

Niemeyer, Oscar  
Brasilia  
Modulo 6: 12-23, Dezembro, 1956

Niemeyer, Oscar  
Brasilia, 1970  
Acropole 375-376: 10-11, Julho/Agosto, 1970

Niemeyer, Oscar  
Minha Experiencia de Brasilia  
Modulo 18: 10-16, Junho, 1960

Niemeyer, Oscar  
Uma Cidade Para Homens  
Arquitetura 76: 16, Outubro, 1968

Papadaki, Stamo  
Brasilia: um Retôrno  
Modulo 24: 2-3, Agosto, 1961

Pedrosa, Mario  
Brasilia, A Cidade Nova  
Arquitetura e Engenharia 55: 6-7, Setembro/Outubro, 1959

Brazilian Periodicals (cont.)

Penna, J. O. de Meira  
O Brasil Constroi uma Nova Capital  
Modulo 7: 18-19, Fevereiro, 1957

Queiroz, Mauricio Vinhas de  
Sete Aspectos Sociais de Brasilia  
Acropole 375/376: 54-57, Julho/Agosto, 1970

Richards, J. J.  
Brasilia Vista por um Inglês  
Modulo 14: 2-5, Agosto, 1959

Wilheim, Jorge  
Brasilia, Ano 2000  
Acropole 375/376: 42-46, Julho/Agosto, 1970

Williams, Amancio  
A Proposito de Brasilia  
Modulo 16: 2-3, Dezembro, 1959

## II. BRAZILIAN PUBLICATIONS (in Portuguese)

Belcher, Donald J. & Associates, Inc.  
Relatório Técnico sobre a Nova Capital da República  
Departamento Administrativo do Serviço Público Serviço de  
Documentação, Rio de Janeiro, 1956

Costa, Lucio  
(Depoimentos Diversos sobre Brasília)  
In Lucio Costa: sobre Arquitetura  
Fac. Arquitetura, UFGS, Porto Alegre, 1962

Freyre, Gilberto  
Brasília  
In Brasil, Brasil e Brasília  
Grafica Record Editora, Rio de Janeiro, 1968, p. 175-197

Niemeyer, Oscar  
Brasília (a Construção)  
In Enciclopedia Barsa  
Enciclopedia Britannica Ltda., Rio de Janeiro, 1970  
V.3, P.362-368

Niemeyer, Oscar  
Minha Experiencia em Brasília  
Ed. Vitoria, Rio de Janeiro, 1961

Crico, Oswaldo  
Brasil, Capital Brasília  
Serviço Grafico do Ibge, Rio de Janeiro, 1960

Pastore, José  
Brasília: a Cidade e o Homem  
Companhia Editora Nacional, São Paulo, 1969

Penna, J. O. de Meira  
Conclusões (sobre a Mudança da Capital)  
In Quando Mudam as Capitais  
Ibge, Rio de Janeiro, 1958, Cap.XVI, pp. 303-313

Reis Filho, Nestor Goulart  
Brasília  
In Quadro da Arquitetura no Brasil  
Editora Perspectiva, São Paulo, 1970, p. 97-104

São Paulo  
Quelques Principes d'Urbanisme a Propos de la Nouvelle  
Capitale du Bresil: Brasília  
Departamento de Imprensa Nacional, Rio de Janeiro, 1960

## II. Brazilian Publications (cont.)

Santos, Milton  
Brasilia e o Subdesenvolvimento Brasileiro  
In a Cidade Nos Países Subdesenvolvidos  
Ed. Civilizacao Brasileira S.A., Rio de Janeiro, 1965,  
III Parte, 51-68

Silva Ernesto  
Historia de Brasilia  
Coordenada, Editora de Brasilia, Brasilia, S/D

Wilheim, Jorge  
Brasilia 1969: Um Comentario Indispensável  
In Urbanismo No Subdesenvolvimento  
Saga Editora, Rio de Janeiro, 1969, p. 284-393

III. INTERNATIONAL PUBLICATIONS  
(Spanish, English, French,  
Italian, German)

Alfieri, Bruno  
New York, Caracas, Brasilia  
Zodiac (Milano) 11:2-19, 1963

Bacon, Edmond N.  
La Grande Realizacion: Brasilia  
In D'Athenes a Brasilia  
Edita SA, Lausanne, 1967, pp220-226 and 283

Barata, Mario  
Punto di Vista di un Brasiliano  
Zodiac (Milano) 6:136-139, 1960

Choay, Francoise  
Une Capitale Prefabriquee: Brasilia  
L'Oeil (Lausanne) 59: 76-83, Novembre, 1959

Clay, Gladys  
Brasilia and Its Personalities  
Landscape Architecture (Louisville) 53(4): 261, July 1963

Cornu, Marcel  
Oscar Niemeyer: Mon Experience a Brasilia  
La Pensee: Revue du Rationalisme Moderne (Paris)  
119:133-135, 1965.

Costa, L., Korn, A., Lasdun, D., Smithson, P.  
Capital Cities  
Architectural Design (London) 11: 437-441, November 1958

Costa Lucio  
L'Urbaniste Defend SA Capitale  
Architecture, Formes, Functions (Lausanne) 14: 18-21, 1968

Costa, Lucio  
Nueva Capital del Brasil  
Temas de Arquitectura y Urbanismo (Madrid) 1:5-16

Costa, Lucio  
Presentacion del Plan Piloto  
El Arquitecto Peruano (Lima) 270/272: 22-27,  
Enero, Marzo, 1960

### III. International Publications (cont.)

Cotta, Anna Rosa & Marcolli, Attilio  
Considerazione su Brasília  
Casabella (Milano) 218: 33-39, Mar., 1958

Dorfles, Gillo  
Il Congresso di Brasilia  
Domus (Milano) 361:29-74, Dic., 1959

Freyre, Gilberto  
A Brazilian's Critique of Brasilia  
The Reporter (New York) 22: 31-32, March 31, 1960

Giedion, Siegfried  
Stadtform und Die Grundung von Brasilia  
(O Plano e a Fundação de Brasilia)  
Bauen & Wohnen (Zurich) 14(8):291-296, August, 1960

Hardoy, Jorge E.  
Two New Capital Cities: Brasilia and Islamabad  
Ekistics (Athens) 18(108): 320-325, November 1964

Holford, William  
Urbanisme de Brasilia: Architectural and Urban Elements  
in the Town Plan of Brasilia  
Architecture, Forms, Functions (Lausanne) 7: 75-77, 1960-61.

Holford, William  
Brasilia: A New Capital City for Brazil  
The Architectural Review (London) 122(734): 394-402,  
December 1957

Holford, William  
Brasilia: The Federal Capital of Brazil  
The Geographical Journal (London) 128: 15-18, March 1962

James, Preston E. & Faissol, Speridião  
The Problem of Brazil's Capital City  
The Geographical Review (New York) 46: 301-317, July 1956  
The Geographical Review (New York) 48: 271-272, October, '56

Kubitschek, Juscelino  
Brasilia  
L'Architecture d'Aujourd'hui (Bologne) 90: 2-3,  
Juin/Juillet, 1960

### III. International Publications (cont.)

Kubitschek, Juscelino  
Brasilia: New Town with Bravura  
American Institute of Architects Journal  
(Washington) 52(2): 42-47, August, 1969

Moholy-Nagy, Sibyl  
Brasilia: Majestic Concept or Autocratic Monument  
Progressive Architecture (New York) 40(10): 88-89,  
October 1959

Nervi, Pier Luigi  
Critica delle Strutture  
Casabella (Milano) 223: 55056, Genn., 1959

Niemeyer, Oscar  
Brasilia  
Architectural Design (London) XXX(12): 524-525  
December, 1960

Niemeyer, Oscar  
Mes Experiences a Brasilia  
L'Architecture d'aujourd'hui (Bologne) 90: 8-9,  
Juin/Juillet, 1960

Niemeyer, Oscar  
Temoignages  
L'Architecture d'aujourd'hui (Bologne) 80: 55,  
Octobre/Novembre, 1958

Niemeyer, Oscar  
Testimonianza  
Zodiac (Milano) 6: 131-135, 1960

Niemeyer, Oscar  
Testimonio  
El Arquitecto Peruano (Lima): 270-272: 28-32, Marzo, 1960

Niemeyer, Oscar  
Unternern Brasilia  
(O Empreendimento de Brasilia)  
Bauwelt (Berlin), 53(21): 583-589, May 1962

Penna, J. O. de Meira  
Brasilia  
El Arquitecto Peruano (Lima), 270/272: 18-21  
Enero /Marzo, 1960



### III. International Publications (cont.)

Penna, J. O. de Meira  
Signification du Transfert de la Nouvelle Capitale  
L'Architecture d'aujourd'hui (Bologne) 80:50-51,  
Octobre/Novembre, 1958

Richards, J. M.  
Brasilia: A Progress Report  
The Architectural Review (London) 125(745):94-104,  
February 1959  
The Architect's Journal (London) 128(3323):668-671,  
November, 1958

Roche, Jean  
Expose Introductif (sur Brasilia)  
In le Probleme des Capitales en Amerique Latine/Symposium  
sur Brasilia  
Centre National de la Recherche Scientifique, Paris,  
1965, p. 363-368

Santos, Milton  
Brasilia, a Nova Capital Brasileira  
In le Probleme des Capitales en Amerique Latine/Symposium  
sur Brasilia  
Centre National de la Recherche Scientifique, Paris, 1965,  
p. 369-385

Zevi, Bruno  
A Kafka Nightmare Critical of Brazil's New Capital City  
Atlas (Paris) 2: 26-28, Juillet, 1961

Zevi, Bruno  
Brasilia de Il Complesso Eur-Kafka Nel Mato Grosso  
Cronache Di Architettura (Bari) e(285), 1970-1971

Zevi, Bruno  
Brasilia Troppo in Frette - Capitale di Plastici Ingranditi  
Cronache di Architettura (Bari) 3(285), 1970-71

Zevi, Bruno  
Brasilia Troppo in Frette - Capitale di Plastici Ingranditi  
Cronache di Architettura (Bari) 3(246), 1970-71

Zevi, Bruno  
Crítica a Brasilia  
Zodiac (Milano) 6: 129-131, 1960

III. International Publications (cont.)

Zevi, Bruno

Elezioni Regionali, Brasilia e U Thant

Architettura (Milano) 16(177): 144, Luglio, 1970

Zevi, Bruno

P.M. Bardi su Burle Marx - Brasilia Senza Paesaggio

Tropicale Cronache di Architettura (Bari) 5(539), 1970-71

Zevi, Bruno

Un Piano per Brasilia - La Nuova Capitale Volera

Cronache di Architettura (Bari) 3(193), 1970-71

#### IV. GENERAL BIBLIOGRAPHY

- Alexander, C., The Oregon Experiment, Oregon Univ., 1973.
- Alonso, William, "What are New Towns For" in Urban Studies, February 1970.
- Gaston, Bachelard, Le Nouveau Spirit Scientifique, Paris, 1968.
- Banham, R., Theory and Design in the First Machine Age, The Architectural Press, 1960.
- Benevolo, Leonardo, The Origins of Modern Town Planning, M.I.T. Press, 1971
- Baran, Paul A., The Political Economy of Growth, New York: Monthly Review Press, 1957.
- Berlink, Mandel Tosta, The Structure of the Brazilian Family in the City of Sao Paulo, Ithaca, N.Y.: Cornell Latin American Studies Program Dissertation, Series 12.
- Berry, Brian, J. L. "City Size Distributions and Economic Development," Economic Development and Cultural Change, 1961.
- Brandao Lopez, Juares, Aspectos de la Adaptacion de los Migrantes Rurales a las Condiciones Urbano-Industriales de San Pablo, Brazil in Hausess et al., La Urbanizacion en America Latina, UNESCO, 1961.
- Browning, H. L., "Recent Trends in Latin American Urbanization," the Annals of the American Academy of Political and Social Sciences, 1958.
- Caldoso, Fernando, Henrique - Sociologie du Developpement en Amerique Latine, Paris, 1969.
- Castells, Manuel, El Analisis Sociologico del Proceso de Urbanizacion - Universidad Catolica de Chile, Cidu, Santiago, 1970
- Castells, Manuel, Structures Sociales et Processus d'Urbanisation: Analyse Comparative Intersocietale - Annales Economies Societes Civilisations, 1970.
- Castells, Manuel, La Urbanizacion Dependiente en America Latina: In Urbanizacion y Dependencia en America Latina; Comp. Martha Schteingart - AIAP, 1972.

#### IV. General Bibliography (cont.)

- Cepal, El Cambio Social y La Politica de Desarrollo Social en America Latina, Naciones Unidas, New York, 1969
- Conn, Stephen, The Squatters' Rights of Favelados, CIDOC, Cuaderno No. 32, Cuernavaca, Mexico
- Daland, Robert T., Brazilian Planning, The University of No. Carolina Press, Chapel Hill, 1967.
- Dos Santos, Theotonio, "La Crise de la Theorie du Developpement et les Relations de Dependence en Amerique Latine," L'Homme et la Societe, 1969.
- Doeringer, Peter B. and Piore, Michael J., Internal Labor Markets and Manpower Analysis, Lexington, Mass. D.C. Heath, 1971.
- Edel, Matthew, B., Development or Dispersal? Approaches to Ghetto Poverty in Readings in Urban Economics edited by Matthew Edel and Jerome Rothemberg, New York: MacMillan, 1972.
- Eppstein, David G., Brasilia, Plan and Reality, University of California Press, Berkeley, 1973.
- Frank, Andre Gunder, Urban Poverty in Latin America, Studies in Comparative International Development, 1966.
- Frank, Andre Gunder, Capitalism and Underdevelopment in Latin America, New York, 1969.
- Friedmann, John, The Future of Urbanization in Latin America, Studies in Comparative International Development, 1969-70.
- Gakenheimer, Ralph Albert, Determinants of Physical Structure in the Peruvian Town of the Sixteenth Century, Doctoral Thesis, Department of City Planning, University of Pennsylvania
- Gans, H., People and Planning, Basic Books, New York 1968.
- Goodman, Percival and Paul, Communitas, Means or Likelihood and Ways of Life, Vintage Books, New York 1960.
- Hardoy, Jorge, Geisse, Guillermo (Ed.), Politicase de Desarrollo Urbano y Regional en America Latina: Ed.; SIAP, 1969.

#### IV. General Bibliography (cont.)

- Hardoy, Jorge E., Políticas de Urbanización y Reforma Urbana en América Latina, Latin American Urban Research, 2, 1970.
- Harrison, David, Social Justice and the City, Edward Edward Arnold, Ltd., London, 1972.
- Harvey, R. O. and Clark, W. A. V. (1965), The Nature and Economics of Urban Sprawl, Land Economics, February
- Hauser, Arnold, The Social History of Art, Vintage Books, New York, 1957.
- Hauser, Arnold, Mannerism, The Crisis of the Renaissance and the Origin of Modern Art, Routledge, Kegan, Paul, London, 1965.
- Hauser, Philip M. Ed., Urbanization in Latin America, New York, 1961.
- Heraud, B. J. (1968) Social Class and the New Town Urban Studies 5.1. February.
- Ianni, Octavio, Estado e Planejamento Economico no Brasil (1930-1970), Civilizacao Brasileira, Rio de Janeiro, 1971.
- Jaguaribe, Helio, Political Development, Harper & Row, 1973.
- Kain, J. F. (1967), Urban Form and the Costs of Urban Services, Discussion Paper No. 6, Harvard University Programme of Regional and Urban Economics.
- Lafer, Celso, The Planning Process and the Political System in Brazil, A Study of Kubitschek's Target Plan, 1956-61, Doctoral Dissertation, Cornell University, 1971
- Lansing, J. B. et al. (1963) The Geographic Mobility of Labour, A First Report. Survey Research Centre, Ann Arbor, Michigan
- Leeds, Anthony, The Anthropology of Cities: Some Methodological Issues, in Elizabeth M. Eddy, Ed.; Urban Anthropology, 1968.

#### IV. General Bibliography (cont.)

- Leeds, Anthony and Elizabeth, Brazil and the Myth of Urban Rurality: Urban Experience Work and Values in "Squatterments" of Rio de Janeiro and Lima, Conference on Urbanization and Work in Modernizing Societies, 1967.
- Leeds, Anthony and Elizabeth, A Bibliography of Urban Settlement Types in Latin America, Department of Anthropology, University of Texas at Austin, 1968.
- Leeds, Anthony, The Significant Variables of Determining the Character of Squatter Settlements, America Latina, 1969.
- Lefebvre, Henri, Espace et Politique, Le Droit a la Ville Anthropolos, 1972.
- Lefebvre, Henri, Everyday Life in Modern World Penguin, Press.
- Lewis, Oscar, "Urbanization without Breakdown," the Scientific Monthly, Vol. LXXV, No. 1, 1952.
- Lewis, Oscar, The Culture of Poverty, Scientific American, 1968.
- Lopes, Juarez Brandao, Sociedade Industrial and Brasil, Sao Paulo, 1964.
- Lopes, Juarez Brandao, Desenvolvimento de Mudanca Social, Formacao da Sociedade Urbano-Industrial, No. Brasil, Sao Paulo, 1968.
- Mangin, William P., Poverty and Politics in Cities of Latin America, in Bloomberg, Warner Jr., Y. Schmandt, Henry J., Eds., Power, Poverty and Urban Policy, Beverly Hills, 1969.
- Medina, Carlos Alberto, A Favela como uma Estrutura Atomistica: Elementos Descritivos e Constitutivos, America Latina, 1969.
- Mills, E. (1970) Urban Density Functions Urban Studies, Vol. 7:1 pp.5-20.
- Morse, Richard M., Cities and Society in Nineteenth Century Latin America: "The Illustrative Case of Brazil" in Hardoy, Schaedel, The Urbanization Process in America from Its Origins to the Present Day, Buenos Aires, 1969.

#### IV. General Bibliography (cont.)

- Parisse, Lucien, Bibliografia Cronologica sobre a Favela do Rio de Janeiro a Partir de 1940, America Latina, 1969.
- Pastore, Jose, Brasilia, A Cidade e o Homem, Sao Paulo, 1969.
- Peattie, Lisa R., Social Issues in Housing, Cambridge, Mass, Joint Center for Urban Studies, Mimeo, 1966.
- Peattie, Lisa R., The View from the Barrio, Ann Arbor, University of Michigan Press, 1968.
- Perlman, Janice E., Rio's Favelados and the Myths of Marginality - Inst. Urban and Regional Development in California, Berkeley, 1974.
- Quijano, Anibal, Dependencia, Cambio Social y Urbanizacion en Latina America, Social Affairs Division, Cepal, 1967.
- Rosenberg, G., (1968), High Population Densities in Relation to Social Behavior, Ekistics, June
- Santos, Milton, Mecanismos de Crescimento Urbano Nos Países em Vias de Desenvolvimento, America Latina, 1969.
- Schmitt, R. C. (1966), Density, Health, Social Disorganization, Journal of American Institute of Planners,
- Singer, Paul, Urbanizacion, Dependencia y Marginalidad en America Latina: in Urbanizacion y Dependencia en America Latina; comp. Martha Schteingart: ed., SIAP.
- Soares, Glaucio Ary Dillon, A Nova Industrializacao e o Sistema Politico Brasileiro, Dados, 1967.
- Turner, John C., Barriers and Channels for Housing Development in Modernizing Countries in Mangin, P., Poverty and Politics, Beverly Hills, 1969.
- Turner, John C. and Fichter, Robert, ed.; Freedom to Build, Macmillan Company, 1972.
- Cornelius, Wayne A., Jr., "Urbanization as an Agent in Latin American Instability: The Case of Mexico," in American Political Science Review, 1969.

IV. General Bibliography (cont.)

Cornelius, Wayne A. Jr., "The Political Sociology of Cityward Migration in Latin America: Toward Empirical Theory," in Latin American Urban Research, No. 1, 1970.

Yujnovsky, Oscar, La Estructura Interna de la Ciudad, El Caso Latino Americano, ediciones SIAP, Buenos Aires, 1971.